LIFE14 CCA/GR/000389 - AgroClimaWater

Promoting water efficiency and supporting the shift towards a climate resilient agriculture in Mediterranean countries

Deliverable:

1st report on Agricultural practices action plans implementation

Action C.4: Application of good agricultural practices to adapt to climate change

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1. Introduction

The particular deliverable presents the impelementation of Agricultural practices implemented in the thirty (30) project's pilot parcels (C4) and the monitoring actions have taken place (D1) in order to evaluated the performance of the practices during the 1st implementation year.

Action C4

The C4 action concerns the application/demonstration of good agricultural practices proposed in Action C3 for the three pilot areas. The aim is to improve water efficiency and increase adaptive capacity on the farm scale. For this reason 30 pilot farms, both organic and conventional ones, in three pilot sub-basins (Platanias, Mirambello and Agri-basin), has been selected by the scientific team of IOTSP.

These 10 pilot farms in each pilot sub-basin were selected representing: a) the most typical crops, as well as b) the typical soil, landscape and agricultural practices differentiation for each crop, within each area of interest (field slope, water availability, soil type, management regime).

Each of the 10 pilot farm has been divided in two parts, the first one will be used as a control part, while the other one as the demonstration part where the practices/interventions are applied.

The action plans for each selected farm are based on the following groups of interventions:

- **Reduction of water evaporation losses from soil surface**

This can be achieved through:

a) The Soil mulching. This practice includes the weed mowing during the high water demand season (late spring and summer period). This practice was implemented at both in olives and citrus crops.

b) No weed control. Based on this practice natural vegetation remains on farm during rainy season (Oct – Apr). Additionally, sowing legumes in rainy season is also a good agricultural practice for reducing water evaporation losses from soil surface as well as providing olive trees with nitrates during summer period after the weed mowing.

c) Weed mowing. This intervention is expected to be the most applicable technique both on olive and citrus crops, while practicing the shredding of pruned wood is expected to enhance soil mulching too. Specifically, shredding pruned wood of small diameter has been applied on orchard surface during spring (early spring).

- **Reduction of transpiration water losses through winter pruning and summer pruning**

Appropriate winter pruning has been applied to obtain the optimal balance between leaf area and yield. Moreover, summer pruning can be also applied to reduce the transpiring leaves and reduce radiation competition. In addition during this project the effectiveness of Kaoline for reducing the transpiration water losses will be investigated. Kaoline has been applied on olive trees through spraying applications during summer period.

- **Reduction deep percolation water and nutrient losses**

This can be achieved through:

a) Increasing organic matter. Application of locally available organic matter could be used for improving the soil water holding capacity. In this way the rapid vertical movement of water along the soil profile can be reduced. This practice has been applied during autumn,

b) Fertigation. In irrigated orchards where there is the option of fertigation, fertilizers have been applied through this method in order to minimize nitrate losses to ground water (more applicable for citrus). The fertigation during spring and summer period is expected to lead to 10 until 30% savings in water and nutrients compared to the quantities conventionally applied. The application of this practice in irrigated olives depending on the infrastructure.

- **Reduction of surface runoff**

Based on this intervention the surface runoff will be minimized especially in sloppy areas. This can be achieved introducing traps, bio-rolls from pruning residues putting vertical to the slope. The benefits of this practice could be more obvious for olive trees farms in high slope.

- **Measures in order to maximize the efficiency of irrigation**

Another important practice concerns the calculation of evapotranspiration losses in each of the selected pilot farms. This will be archived based on weekly bulletins that are available on crop irrigation water requirements (meteorological conditions, soil type, crop) for irrigated olive trees and citrus. In addition, depending on the irrigated farm, a new irrigation network has been established. Based on this plan, a set of water-meters and volumetric valves were introduced in each orchard, in order to provide farmers with the tools to precisely control the amount of irrigation water that is applied to the orchard. Establishing and checking the irrigation network in each farm and after the accurate estimation of evapotranspiration losses an application of regulated deficit irrigation will be of high priority for reducing water use up to 20-30% in olive trees and 10-15% in citrus, with no negative effects on yield quality and quantity.

- **Rationalization of fertilizers and agrochemicals utilized**

The demonstration orchards have been cultivated based on the principles of integrated management, and supervised by the agriculturalists, so that the risk for water pollution by agrochemicals is minimized. Moreover, IOTSP is responsible for providing a fertilizing schedule for the orchards, in order to use the necessary quantity and minimize the risk of ground and surface water pollution by fertilizers. The fertilizing schedule was applied in each farm based on soil and leaf nutrients analysis.

Action D1

The proposed agricultural practices (GAPs) applied into the demonstration plots of each pilot site have been monitored during the first implementation year 2017. Data recorded and generated during monitoring the GAPs, include resources consumptions, several parameters' measurements and their analyses.

The monitoring procedure are organized in order to allow comparisons of different orchard managements between the "demonstration" and "traditional" part of each farm.

In accordance to the classification of practices in groups presented in Action C4, a brief description of the monitoring procedures of Action D1 is given below. The monitored parameters include:

1. Water evaporation losses: Soil water evaporation losses will be included in the estimation of evapotranspirational water losses, by monitoring soil moisture in the demonstration farms, using soil moisture sensors.

2. Transpiration water losses: as mentioned above, a common estimation for the orchard floor evapotranspirational water losses was monitored by measuring soil moisture. For the effectiveness of pruning in reducing the transpiring surface of tree, leaf area index (LAI) measurements were performed once during the summer period

and the water saving have calculated based on LAI differences between the "demonstration" and "traditional" parts of the farm.

3. Deep percolation water and nutrient losses: Measurements of soil moisture during winter and comparison between the two parts of the farm allow to estimate the water saving by both surface runoff and deep percolation.

4. Surface runoff water: in orchards at high slope areas, rainfall simulator measures were taken in order to collect runoff water.

5. Sustainable use of irrigation water at farm scale: in irrigated orchards, the irrigation water saving has been estimated by recording and comparing the amount of water used for irrigation between the "demonstration" and "traditional" part of the orchard.

6. Rational use of fertilizers: leaf and soil samples (e.g. nitrate soil content analysis) were collected and analyzed in order to define a specific fertilizing schedule according to nutrient balance.

7. Meteorological data: data for each area are available from local stations. They are useful for getting estimates of precipitation and for the calculation of crop evapotranspirational losses. The soil water balance has been estimated on a daily basis using ETo values from the closest meteorological station, and corrected every 15 days using soil moisture data measured by sensors installed at field site.

Data on fruit yield have been recorded for each part of the pilot farms by F.ORs' agriculturalists and have been forwarded to IOTSP and UNIBAS, to be used for calculation of water use efficiency for the produced yield. Two levels of quality control have been foreseen:

1st level quality control has been performed by agriculturalists according to the procedure described in the monitoring protocols.

2nd level quality control has been performed by IOTSP and UNIBAS against the acceptable (anticipated) range for each parameter monitored.

2. Cretan pilot areas

The two Cretan pilot areas (Platanias and Mirabello) have been selected by the scientific team of IOTSP. The 10 pilot farms in each pilot sub-basin were selected representing: a) the most typical crops in Platanias area [olive trees (rainfed and irrigated), citrus trees (irrigated)] and in Mirabello area [olive trees (rainfed and irrigated)], as well as b) the typical soil, landscape and agricultural practices. The spatial distribution of these pilot farms are presented for Platanias and Mirambello sub-basins in Figure 1 and 2, respectively.

As we can see in these figures in Platanias area from the ten (10) pilot farms, eight were olive farms and the rest two citrus. This proportion correspond adequacy to the presentence of olive and citrus crops in the extended area of Platanias prefecture. From these eight olive trees pilot farms five are irrigated and three rainfed. Also, in Platanias area the two selected citrus crops are irrigated.

Regarding the Mirabello sub-basin, from the ten (10) pilot farms all of them are olive farms as citrus cultivation in this area do not exist. From the ten olive farms two are irrigated and the rest eight rainfed. Also, this proportion corresponds adequacy to the presentence of irrigated olive crops in the extended Mirambello area.

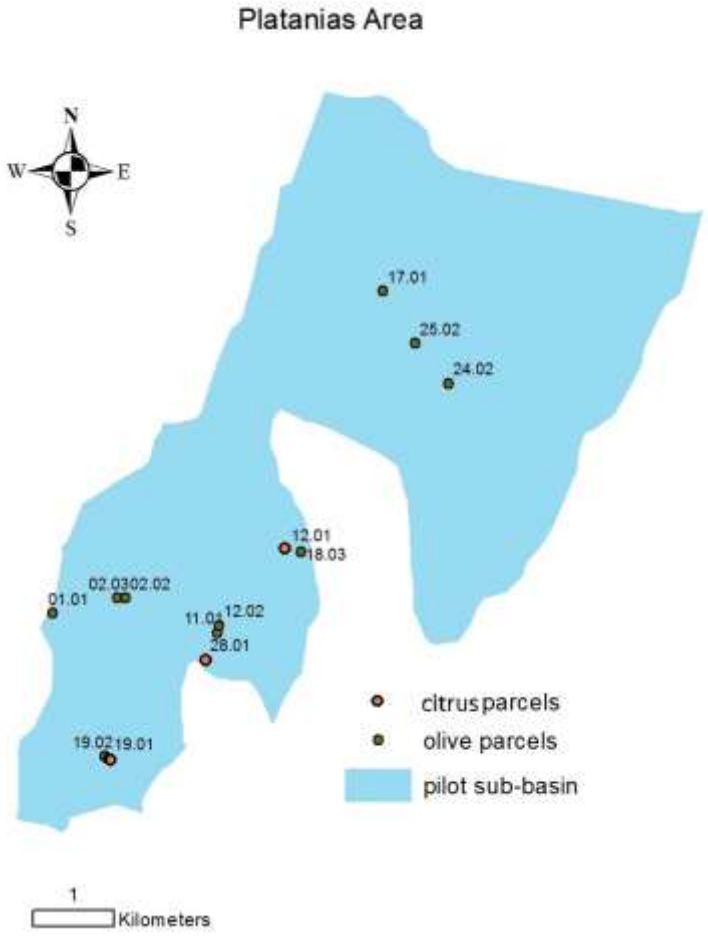


Figure 1. The 13 selected pilot farms (with the three replaced) in Platanias sub-basin with the corresponding codes (green colour represents olive trees while range citrus).

Figure 2 The 10 selected pilot farms in Mirabello sub-basin with the corresponding codes.

2.1. Pilot area of Platanias

2.1.1. Overview of 1st year of application in Platanias area

General information about the pilot area, crops, farms per crop included.

In Platanias area, given that the crop ratio according to acreage was 5.7:1 (olives:citrus), and given that the typical management (organic vs. conventional and irrigated vs rainfed) was less variable for citrus as compared to olives, it was decided that citrus should occupy 2 out of 10 slots in this area. Therefore, the final slot layout for crops in Platanias area was:

- 8 olive orchards and
- 2 citrus orchards

General comments about problems faced on year 1 and the causing factors.

During the first year of application of cultural practices, there were some problems with certain farms that had to be excluded in Platanias area. In total, 3 farms had to be excluded for the following reasons:

Farm 25.02 (olive): During the spring of 2017, the project team was informed that the owner of the farm has sold the land. The new owner was of Norwegian origin, so the contact point was his lawyer in Crete, who was contacted and asked if the new owner wishes to cooperate and continue the project in his farm. The response was that the new owner will not use the land as a farm and the olive trees will be removed. Consequently, the farm had to be exluded.

Farms 19.01 and 19.02 (1 olive and 1 citrus): Both farms belonged to the same owner. Despite his initial cooperation in the beginning of the project, during the spring of 2017 the owner applied weed control (by soil tillage) in the demonstration part of the field before the application of the same work (as weed mowing) by the contractor. He was contacted and reminded that weed control in the demonstration part has to be applied by the project and not by himself, which he seemed to accept, but without providing adequate explanation on why he did it. After the installation of the new irrigation system, during June 2017, the owner removed it from the demonstration part and used his old irrigation system for applying irrigation water. He was contacted again and asked the reasoning for his action and the explanation that he gave was that he was not informed that new water meters would be installed in his farm. Despite the fact that it was clearly explained to him that this is just a part of the monitoring equipment that had to be installed in each farm, he never accepted the new irrigation system and the monitoring equipment, providing excuses that lacked any scientific or practical basis. Consequently, the farmer and both of his farms had to be excluded, for reasons of lack of cooperation.

Three new farms had to be selected for replacing the above mentioned cases. The procedure was completed in autumn of 2017, with farms 02.03 (olive), 12.01 (olive) and 12.02 (citrus).

Concerning the application of agricultural practices, most of them were applied as scheduled in Platanias area. The only two practices that were not applied were summer pruning and application of kaoline in olive farms. The reasons behind that decision were related to both the weather conditions during summer, which was more rainy than usual, and some delays from the contractor on application dates which would turn the effectiveness of application questionable. Therefore, it was decided that

the benefits under the circumstances would be minimal for justifying the cost of application.

In comparison of the control and demonstration parts, it was observed that irrigation by the farmer on both olive and citrus control parts was minimal in the area and way below the recommended minima for deficit irrigation of the crops. Therefore, the irrigation scheduling of the demonstration part had to be adjusted, as compared to the original plan and it ended up using higher amounts of irrigation water as compared to the control.

In one farm (24.02, olive), due to a misunderstanding (despite the fact that this was quite clearly explained to farmers during the introductory meetings), the farmer did not apply plant protection sprays in the demonstration part of the field, assuming that this would be applied by the contractor. As a consequence, a significant yield reduction occurred due to olive fruit fly infestation, before harvesting.

Table 1. List of scheduled application of cultural practices in the area of Platanias

Practice	Scheduled number of farms	Actual number of farms
Winter pruning	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2
Soil mulching	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2
Weed mowing	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2
Legumes showing	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2

2.1.1.1. Farm 11.01

General farm overview

- Farmer / Manager: Thomakis Stylianos
- Crop: Olive
- Coordinates: Latitude 482590.48, Longitude 3925255.01.
- Size: 0.4 ha / 80 trees
- Tree age: 36 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 3. Overview of farm 11.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Presentation of practices that were applied in the control plot by the farmer.

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: 2 Total amount: 42.5 mm	Details on relevant table	farmer
Plant protection	Spray:3	PPP-1 ROGOR 40EC	farmer
Weed management	Spray: 1	ROUNDUP	farmer

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
Jul-2017	206.25	
Aug-2017	218.75	
Total	**425**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	46-0-0 Soil application	N: 327 P: 0 K: 0	
Jan-2017	0-0-60 Soil application	N: 0 P: 0 K: 427	
Total		N: 327 P: 0 K:427	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 2 Foliar:	Details on relevant table	IOTSP's contractor
Irrigation	Number: 5 Total amount: 105.63 mm	Details on relevant table	FOR's Agronomist
Weed management	Jun 2017 – 1 application		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
28/6/2017	237.5	
20/7/2017	237.5	
30/8/2017	237.5	
6/9/2017	112.5	
20/9/2017	231.25	
Total	**1056.25**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Aug-2017	15-10-50 fertigation	N: 6 P: 4 K: 20	
Aug-2017	15-10-50 fertigation	N: 6 P: 4 K: 20	
	compost	N: 24.65 P: 20.63 K: 1.63	
	26-0-0 Soil application	N: 90.05 P: 4.7 K: 23.5	
Total		N: 126.70 P: 28.63 K: 41.63	

Figure 4. Access tubes installation for soil moisture measurements

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both the demonstration and control part
-The fertilizing schedule in the demonstration part included the use of winter application and fertigation, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer more than the actual requirements of olive trees.
-The amount of irrigation water applied in the control part (425 m^3/ha) was higher as compared to demonstration (1056.25 m^3/ha). The irrigation dose that was applied by the farmer was below the crops water needs.
-Weed control was applied as weed mowing in the demonstration and as herbicide in the control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.2. Farm 18.03

General farm overview

- Farmer / Manager: Spyridoula Kariotaki
- Crop: Olive
- Coordinates: Latitude 483638.85, Longitude 3925999.56.
- Size: 1.0 ha / 152 trees
- Tree age: 31 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Organic farm

Figure 5. Overview of farm 18.03 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring

2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Reduction of surface runoff: Means of physical reduction of surface runoff were introduced along the contour lines in the orchard. The establishment was implemented during summer 2017.

Surface runoff: Traps for monitoring the amount of surface runoff were installed.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	farmer
Fertilizing	Applications: 2 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: 1 Total amount: 44.7 mm	Details on relevant table	farmer
Plant protection	Foliar: -		farmer
Weed management	Mowing: 2	January and March	farmer

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
Aug-2017	447	
Total	**447**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	10-0-50 Soil application	N: 80 P: 0 K: 400	
Aug-2017	Soil application	N: 0 P: 0 K: 32	
Total		N: 80 P: 0 K: 432	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 2 Foliar: 0	Details on relevant table	IOTSP's contractor
Irrigation	Number:5 Total amount: 48.6mm	Details on relevant table	FOR's Agronomist
Weed management	Jun 2017 – 1 application		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
28/6/2017	100.0	
20/7/2017	100.0	
30/8/2017	100.0	
6/9/2017	90.50	
20/9/2017	95.20	
Total	**485.70**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jul-2017	0-0-50 Fertigation	N: 0 P: 0 K: 20	
Aug-2017	0-0-50 Fertigation	N: 0 P: 0 K: 20	
	compost	N: 24.65 P: 20.63 K: 1.63	
	11-0-0 organic	N: 90 P: 0 K:	
Total		N: 114.65 P: 20.63 K: 41.63	

Figure 6. Traps for monitoring the amount of surface runoff

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both the demonstration and control part
-The fertilizing schedule in the demonstration part included the use of winter application and fertigation, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was more than the actual requirements of olive trees.
- The amount of irrigation water was at comparable levels in both parts of the field, with slightly higher amount of water applied in the demonstration part (485.7 m^3/ha) as compared to control part (447 m^3/ha).
-Weed control was applied as weed mowing in the demonstration and control part. The farmer plied also winter weed
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.3. Farm 19.02

General farm overview

- Farmer / Manager: Mamidakis Ioannis
- Crop: Olive
- Coordinates: Latitude 481172.65, Longitude 3923860.93.
- Size: 0.6 ha / 150 trees
- Tree age: 11 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 7. Overview of farm 19.02 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil

moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: Total amount:	The parcel was replaced before the irrigation period	farmer
Plant protection	Spray: 2	January and May	farmer
Weed management	Spray: 2		farmer

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	15-15-15 Soil application	N: 60 P: 60 K: 60	
Total		N: 60 P: 60 K: 60	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar:	Details on relevant table	IOTSP's contractor
Irrigation	Number: Total amount:	The parcel was replaced before the irrigation period	FOR's Agronomist
Weed management	February 2017		IOTSP's contractor

Legumes sowing	October 2017		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	Compost	N: 24.65 P: 20.63 K: 1.63	
	26-0-0 soil application	N: 92 P: K:	
Total		N: 116.65 P: 20.63 K: 1.63	

Figure 8. Weeds recording

2.1.1.4. Farm 17.01

General farm overview

- Farmer / Manager: Kantilaki Aikaterini
- Crop: Olive
- Coordinates: Latitude 484293.81, Longitude 3929802.68.
- Size: 3.5 ha / 400 trees
- Tree age: 66 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 9. Overview of farm 17.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil

moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: 2 Total amount: 15.4 mm	Details on relevant table	farmer
Weed management	Spray: 2		farmer
Plant protection	No records		

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
Aug-2017	91.4	
Sep-2017	62.8	
Total	**154.2**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	21-7-14 Soil application	N: 13 P: 4 K: 8.5	
Total		N: 13 P: 4 K: 8.5	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 1 Foliar: 2	Details on relevant table	IOTSP's contractor
Irrigation	Number: 5 Total amount: 88.5 mm	Details on relevant table	FOR's Agronomist
Weed management	Jun-Sep 2017 – 2 applications		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
28/6/2017	200.0	
20/7/2017	200.0	
30/8/2017	200.0	
6/9/2017	90.0	
20/9/2017	195.0	
Total	**885.0**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Aug-2017	15-10-50 fertigation	N: 12 P: 2 K: 40	
	compost	N: 24.65 P: 20.63 K: 1.63	
	21-0-0 Soil application	N: 91.98 P: K:	
Total		N: 128.61 P: 28.63 K: 41.63	

Figure 10. Soil mulching by shredding the pruned wood

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both the demonstration and control part
-The fertilizing schedule in the demonstration part included the use of winter application, foliar application and fertigation, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-The amount of irrigation water applied in the demonstration part (885 m^3/ha) was higher as compared to control part (154 m^3/ha). The irrigation dose that was applied by the farmer was below the crops water needs.
-Weed control was applied as weed mowing in the demonstration and as herbicide in the control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.5. Farm 25.02

General farm overview

- Farmer / Manager: Paraskakis Emmanouel
- Crop: Olive
- Coordinates: Latitude 484725.26, Longitude 3928502.94.
- Size: 0.4 ha / 80 trees
- Tree age: 16 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 11. Overview of farm 25.02 with the polygons of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.
Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.
Fertigation system: A fertigation system was incorporated in the above-mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.
Reduction of surface runoff: Means of physical reduction of surface runoff were not installed due to the replacement of the farm

Application of practices in the control plot by the farmer

No records of the applied practices by the farmer due to the replacement of the parcel

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contactor
Fertilizing	Winter application: 1 Fertigation: Foliar:	Details on relevant table	IOTSP's contactor
Irrigation	Number: Total amount:	The parcel was replaced before the irrigation period	IOTSP's contactor
Legumes sowing	Not applied	Due to replacement	
Weed management	Not applied	Due to replacement	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	compost	N: 24.65 P: 20.63 K: 1.63	
	21-0-0 soil application	N: 99.93 P: K:	
Total		N: 124.58 P: 20.63 K: 1.63	

2.1.1.6. Farm 24.02

General farm overview

- Farmer / Manager: Paraskakis Alexandros
- Crop: Olive
- Coordinates: Latitude 485375.11, Longitude 3928459.89.
- Size: 0.65 ha / 105 trees
- Tree age: 26 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 12. Overview of farm 24.02 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing,

and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: 1 Total amount: 14.2 mm	Details on relevant table	farmer
Weed management	Spray: 2	January and March	farmer
Plant protection	Spray: 3		farmer

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
Aug-2017	142	
Total	142	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	24-8-20 Soil application	N: 90 P: 30 K: 75	
Total		N: 90 P: 30 K: 75	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 1 Foliar:	Details on relevant table	IOTSP's contractor
Irrigation	Number: 5 Total amount: 57.7 mm	Details on relevant table	FOR's Agronomist
Weed management	Jun-Sep 2017 – 2 applications		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
28/6/2017	113.60	
20/7/2017	113.60	
30/8/2017	113.60	
6/9/2017	104.50	
20/9/2017	131.62	
Total	**576.92**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jul-2017	15-10-50 fertigation	N: 6 P: 4 K: 20	
Aug-2017	15-10-50 fertigation	N: 6 P: 4 K: 20	
	compost	N: 24.65 P: 20.63 K: 1.63	
	21-0-0 Soil application	N: 91.96 P: K:	
Total		N: 128.61 P: 28.63 K: 41.63	

Figure 13. Sown legumes in demonstration plot

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both the demonstration and control part
-The fertilizing schedule in the demonstration part included the use of winter application and fertigation, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was less than the actual requirements of olive trees.
-The amount of irrigation water applied in the demonstration part (576.92 m^3/ha) was higher as compared to control part (142 m^3/ha). The irrigation dose that was applied by the farmer was below the crops water needs.
-Weed control was applied as weed mowing in the demonstration and as herbicide in the control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.7. Farm 01.01

General farm overview

- Farmer / Manager: Vagionaki Georgia
- Crop: Olive
- Coordinates: Latitude 480430.23, Longitude 3925776.48.
- Size: 1 ha / 220 trees
- Tree age: 46 years
- Water management: Non-irrigated
- Agrochemicals management: Organic farm

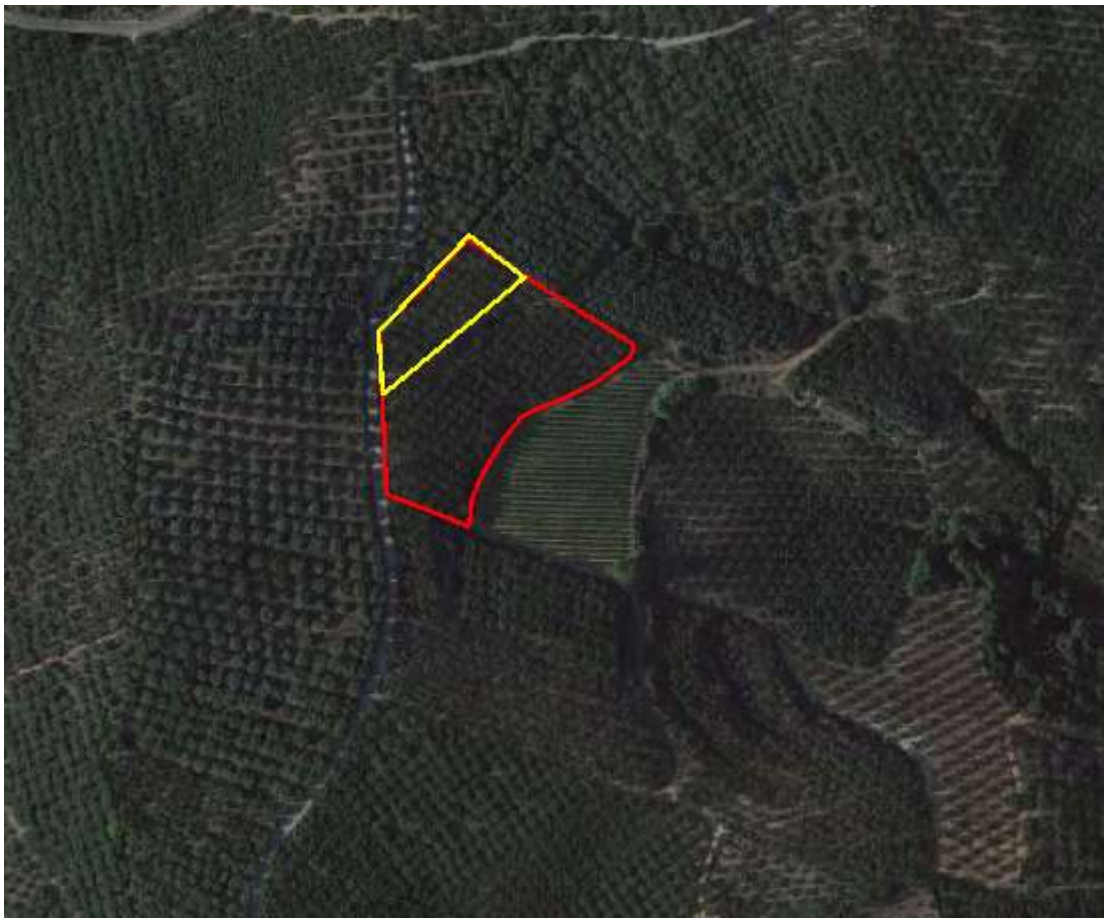


Figure 14. Overview of farm 01.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Plant protection		PPP-2 SUCCESS Suitable for organic fields	farmer
Weed management	Mowing: 2	March and June	farmer

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	0-0-50 Soil application	N: 0 P: 0 K: 93.75	
Total		N: 0 P: 0 K: 93.75	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 2	Details on relevant table	IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	0-0-50 Foliar	N: P: K: 2	
	0-0-50 Foliar	N: P:	

		K: 2	
	compost	N: 24.65 P: 20.63 K: 1.63	
	11-0-0 organic	N: 85 P: K:	
Total		N: 109.67 P: 20.63 K: 5.63	

Figure 15. Access tubes installation for soil moisture measurements

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied both in the demonstration and control part
- The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration and control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.8. Farm 02.02

General farm overview

- Farmer / Manager: Vagionakis Nikolaos
- Crop: Olive
- Coordinates: Latitude 481082.43, Longitude 3925778.58.
- Size: 0.5 ha / 120 trees
- Tree age: >30 years
- Water management: Rainfed
- Agrochemicals management: Conventional farm

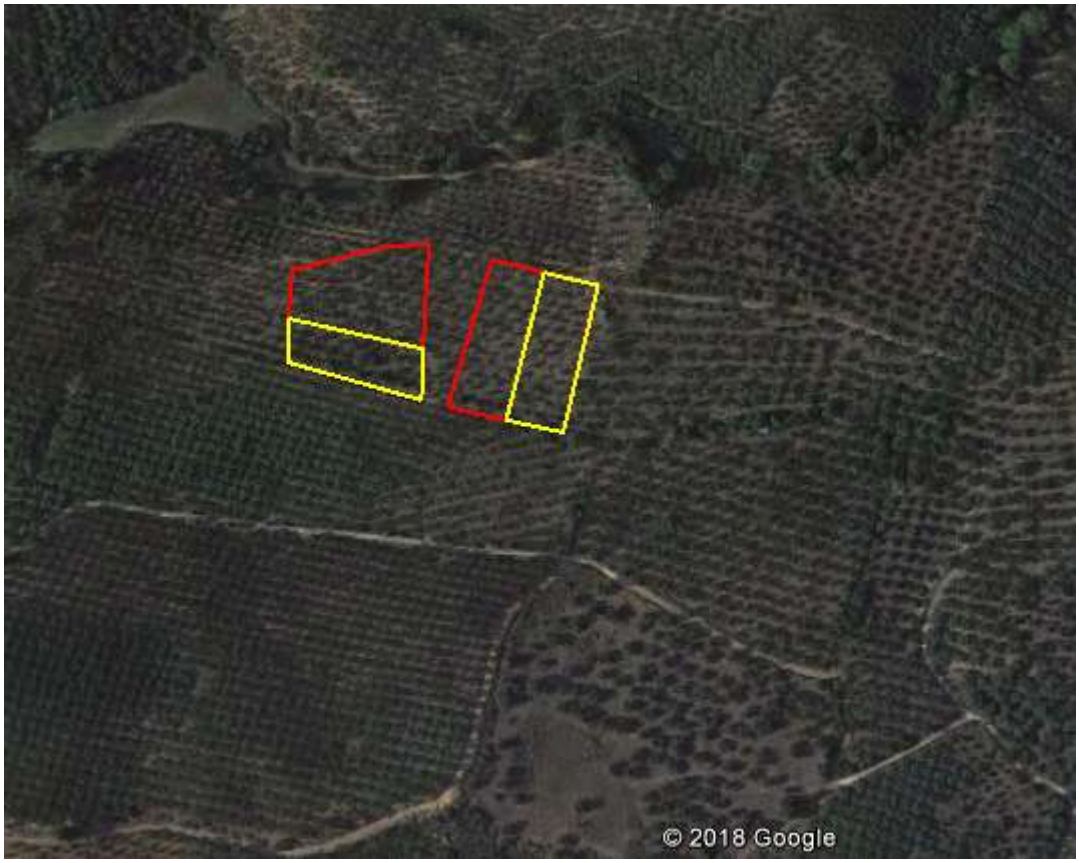


Figure 16. Overview of farm 02.02 (right) with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Weed management	Spray: 2	January and March	farmer
Plant protection	No records		

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	26-0-0 Soil application	N: 104 P: 0 K: 0	
Total		N: 104 P: 0 K: 0	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 2	Details on relevant table	IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jul-2017	14-10-50 Soil application	N: 1.12 P: 0.8 K: 4	
	15-10-50 Foliar	N: 0.6 P: 0.4 K: 2	

	15-10-50 Foliar	N: 0.6 P: 0.4 K: 2	
	compost	N: 24.65 P: 20.63 K: 1.63	
	26-0-0 Soil application	N: 79.98 P: K:	
Total		N: 106.94 P: 22.23 K: 9.62	

Figure 17. Leaf Area Index measurement during summer 2017.

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both the demonstration and control part
-The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration and as herbicide in the control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.9. Farm 28.01

General farm overview

- Farmer / Manager: Antonogiannaki Maria
- Crop: Citrus - Orange
- Coordinates: Latitude 482272.01, Longitude 3925199.70.
- Size: 0.75 ha / 375 trees
- Tree age: 36 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

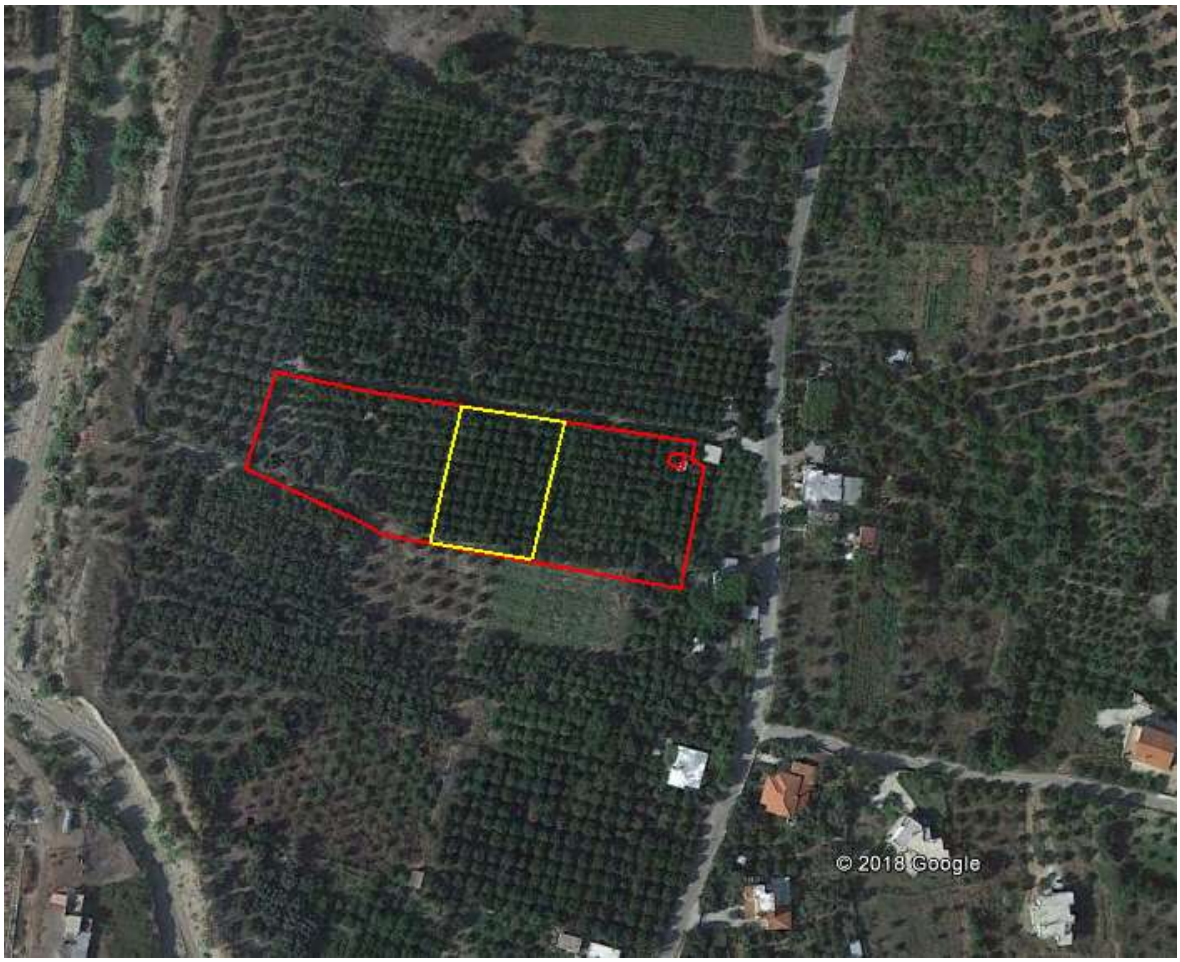


Figure 18. Overview of farm 28.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: 4 Total amount: 105.3 mm	Details on relevant table	farmer
Weed management	Spray: 1	May	farmer
Plant protection	Spray: 2	DUSBAN (May) PPP-2 SUCCES (Oct)	farmer

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
Jun-2017	70.18	
Jul-2017	105.26	
Aug-2017	350.88	
Sep-2017	526.32	
Total	**1052.63**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	34.5-0-0 Soil application	N: 63 P: 0 K: 0	
Jun-2017	34.5-0-0 Soil application	N: 94 P: 0 K: 0	
Jun-2017	13-0-46 Soil application	N: 24 P: 0 K: 84	

Jun-2017	Mg Soil application	Mg: 91	
Jul-2017	34.5-0-0 Soil application	N: 25 P: 0 K: 0	
Jul-2017	13-0-46 Soil application	N: 6 P: 0 K: 21	
Sep-2017	13-0-46 Soil application	N: 6 P: 0 K: 21	
Total		N: 218 P: 0 K: 126 Mg: 91	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar:	Details on relevant table	IOTSP's contractor
Irrigation	Number:11 Total amount: 190.6 mm	Details on relevant table	FOR's Agronomist
Weed management	Jun-Sep 2017 – 2 applications		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
28/6/2017	211.00	
10/7/2017	211.00	
19/7/2017	211.00	
28/7/2017	211.00	
9/8/2017	211.00	
16/8/2017	178.00	
23/8/2017	144.50	
30/8/2018	144.50	
6/9/2018	119.90	
13/9/2018	119.90	
20/9/2018	144.50	
Total	**1906.30**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	compost	N: 49.3 P: 41.3 K: 3.25	
	26-0-0 Soil application	N: 180 P: K:	
Total		N: 229.3 P: 41.3 K: 3.25	

Figure 19. Monitoring C4 practices in 28.01 citrus field

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both the demonstration and control part
-The fertilizing schedule in the demonstration and control part included the use of winter application.
-The amount of irrigation water applied in the demonstration part (1906.30 m^3/ha) was higher as compared to control part (1052.63 m^3/ha). The irrigation dose that was applied by the farmer was below the crops water needs.
-Weed control was applied as weed mowing in the demonstration and as herbicide in the control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.1.1.10. Farm 19.01

General farm overview

- Farmer / Manager: Mamidakis Ioannis
- Crop: Citrus - Lemon
- Coordinates: Latitude 481089.60, Longitude 3923898.58.
- Size: 0.4 ha / 120 trees
- Tree age: 10 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

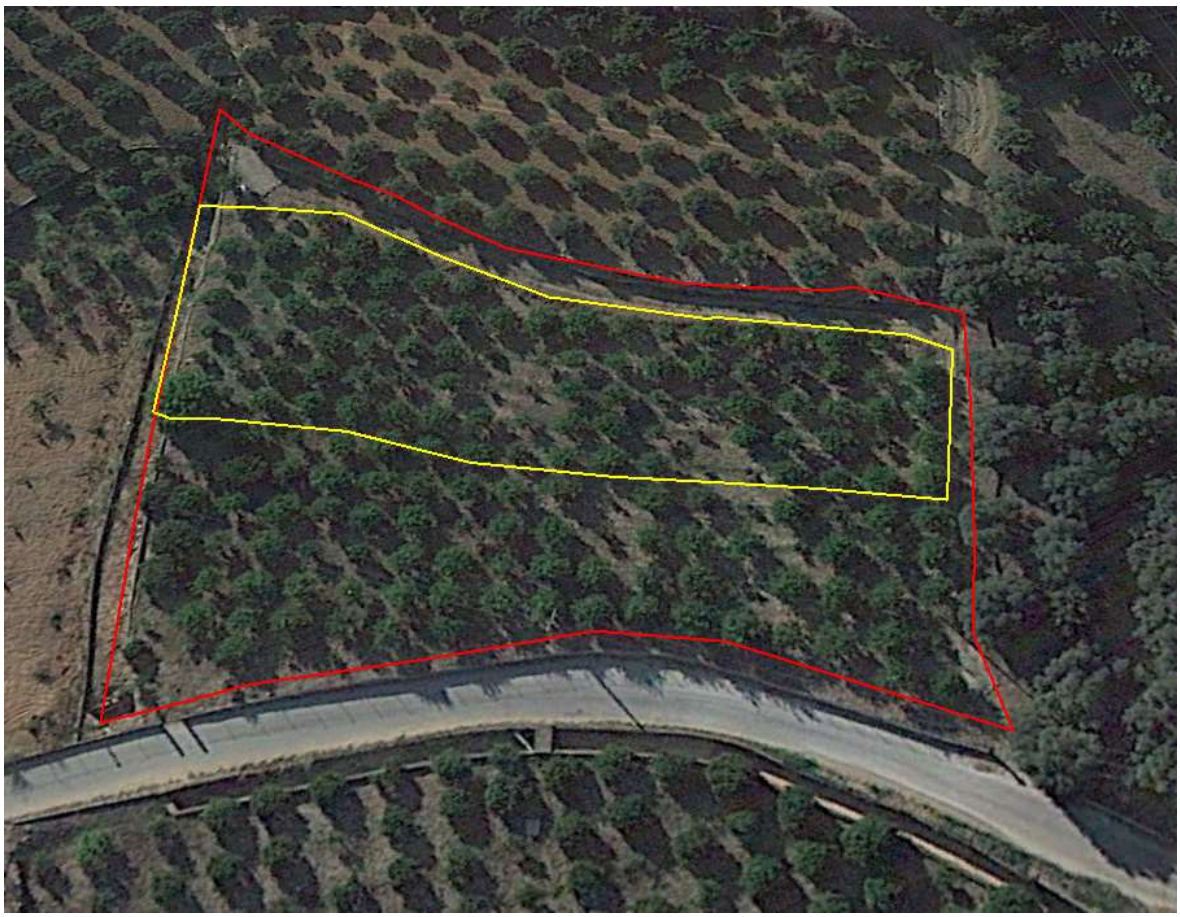


Figure 20. Overview of farm 19.01 with the polygons of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil

moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	farmer
Fertilizing	Winter application:1 Fertigation: Foliar:	Details on relevant table	farmer
Irrigation	Number:0	The parcel was replaced before the irrigation period	farmer
Plant protection	--		
Weed management	--		

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
Jan-2017	21-0-0 Soil application	N: 105 P: 0 K: 0	
Total		N: 105 P: 0 K: 0	

Application of practices in the demonstration plot

No practices were applied because of the replacement of the parcel

Figure 21. Weeds recording

2.1.1.11. Farm 02.03

General farm overview

- Farmer / Manager: Vagionakis Nikolaos
- Crop: Olives
- Coordinates: Latitude , Longitude
- Size: 0.5 ha
- Tree age: >30 years
- Water management: Non-Irrigated
- Agrochemicals management: Conventional farm

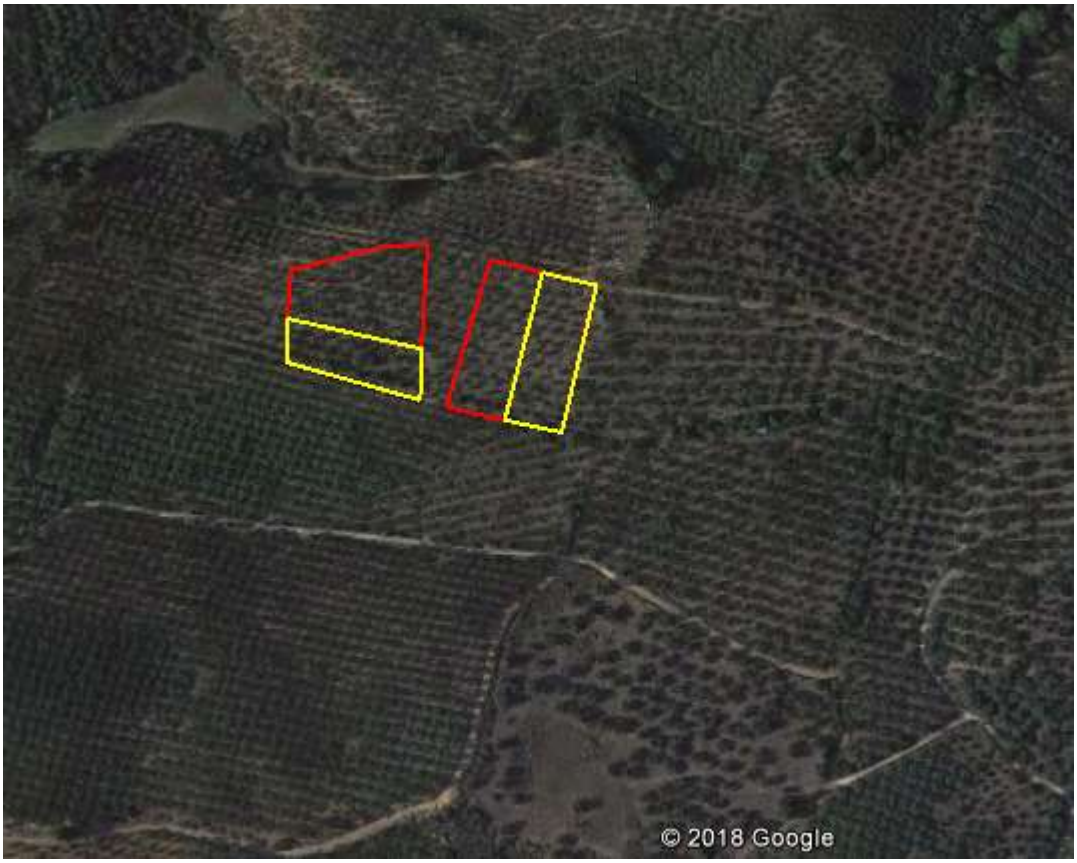


Figure 22 Overview of farm 02.03 (left) with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Two access tubes (one of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during autumn 2017, for monitoring soil moisture at different soil depths at 2 spots per orchard. The deviations from the schedule are due to the replacement of the parcels. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

New field - No records for the applications applied by the farmer

Application of practices in the demonstration plot

New field – No applications applied

Figure 23. Access tubes installation for soil moisture measurements

2.1.1.12. Farm 12.01

General farm overview

- Farmer / Manager: Nikolakaki Maria
- Crop: Olives
- Coordinates: Latitude, Longitude.
- Size: 0.16 ha
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 24. Overview of farm 12.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing,

and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Two access tubes (one of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during autumn 2017, for monitoring soil moisture at different soil depths at 2 spots per orchard. The deviations from the schedule are due to the replacement of the parcels. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Reduction of surface runoff: Means of physical reduction of surface runoff were introduced along the contour lines in the orchard. The establishment was implemented during autumn 2017. The deviations from the schedule are due to the replacement of the parcels.

Surface runoff: Traps for monitoring the amount of surface runoff were installed during autumn 2017. The deviations from the schedule are due to the replacement of the parcels.

Application of practices in the control plot by the farmer

New field - No records for the applications applied by the farmer

Application of practices in the demonstration plot

New field – No applications applied

Figure 25. Means of physical reduction of surface runoff

2.1.1.13. Farm 12.02

General farm overview

- Farmer / Manager: Nikolakaki Maria
- Crop: Citrus -Orange
- Coordinates: Latitude, Longitude
- Size: 1.5 ha
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 26. Overview of farm 12.02 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Two access tubes (one of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during autumn 2017, for monitoring soil moisture at different soil depths at 32 spots per orchard. The deviations from the schedule are due to the replacement of the parcels. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

New field - No records for the applications applied by the farmer

Application of practices in the demonstration plot

New field – No applications applied

Figure 27. Selection of the new citrus field (12.02)

2.1.2. Overview of 1st year of monitoring in Platanias area

According to the farm specific action plans that have been reported in Deliverable C.3.2 and to the protocols presented in the deliverable D1, the list of monitoring parameters in the Cretan areas are as follows:

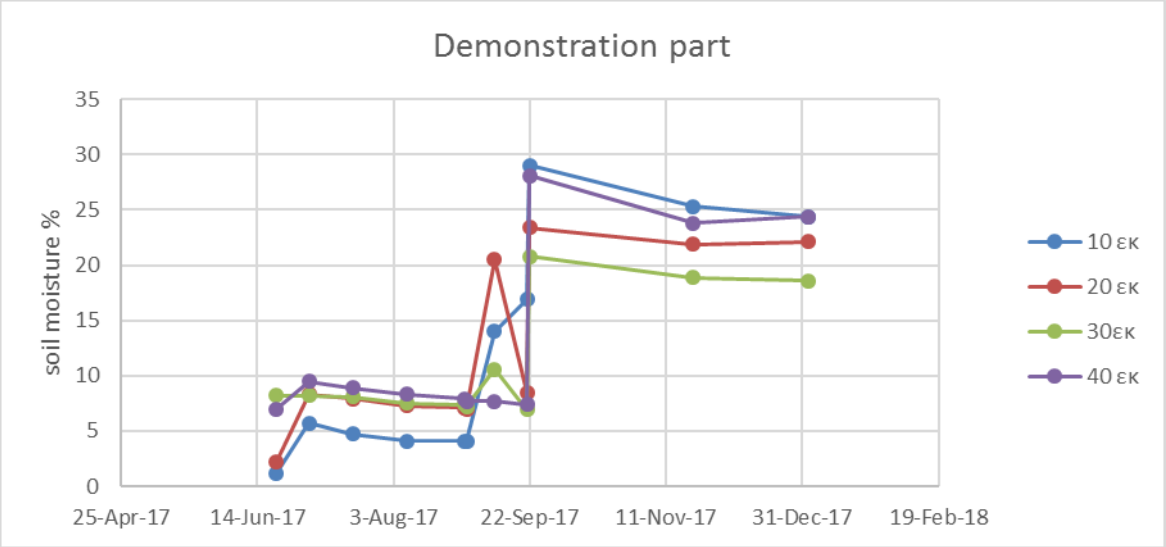
- Recording of applications
- Recording of soil moisture
- Recording of leaf area index (LAI)
- Soil sampling and analyses
- Leaf sampling and analyses
- Nitrate soil content
- Recording of irrigation water use
- Fruit yield
- Monitoring of meteorological data

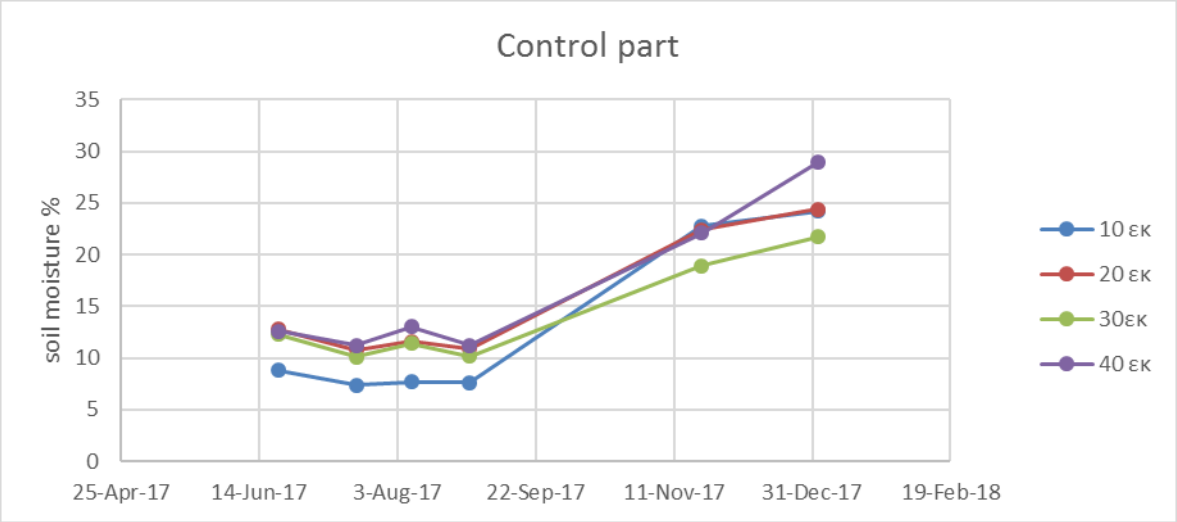
Table 2. List of scheduled installation of monitoring equipment in the area of Platanias

Scheduled activity	Scheduled number of equipment	Responsible for installation
Meteorological stations	2	IOTSP in cooperation with KEDHP
Tubes for soil moisture sensors	60 (72 were installed)	IOTSP
Irrigation network	8 (10 were installed)	IOTSP
Barriers for reducing surface runoff	2 sets	IOTSP
Runoff water trap constructions	4	IOTSP

2.1.2.1. Farm 11.01 Olive – Thomakis - Irrigated

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Figure 28. Soil moisture sensor

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Thomakis	Olive	2.89	3.89

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3 ha^{-1}]	IR = annual irrigation records [m^3 ha^{-1}]
Thomakis	Olive	283.33	1062.50

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Thomakis	Olive	14583	21875

Leaf nutritient

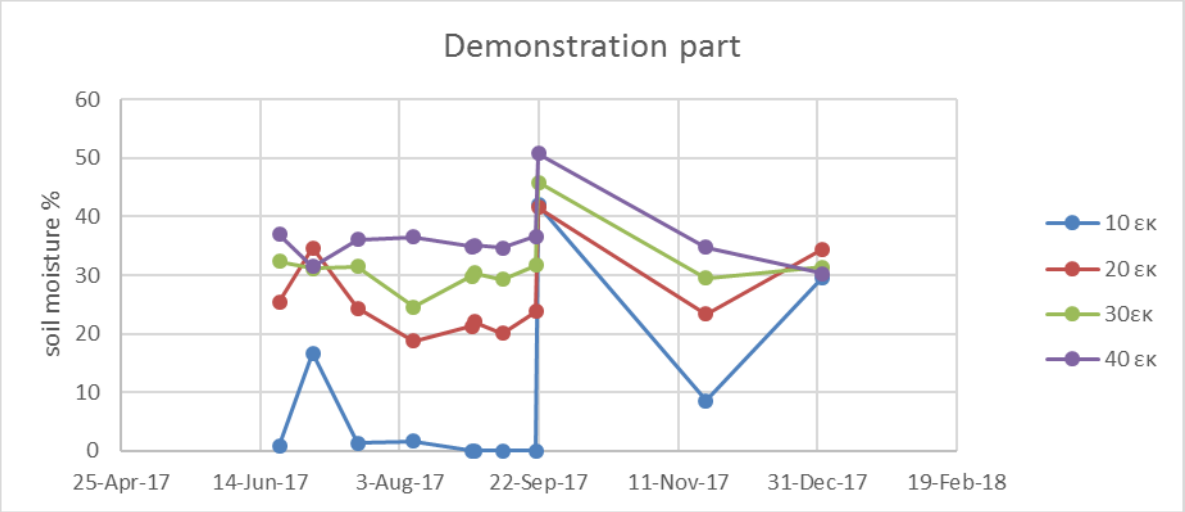
FARMER	CROP	%					
			N	P	K	Ca	Mg
Thomakis	Olive	Control	1,88	0,132	1,34	1,79	0,167
		Demo	1,83	0,165	1,14	2,21	0,197

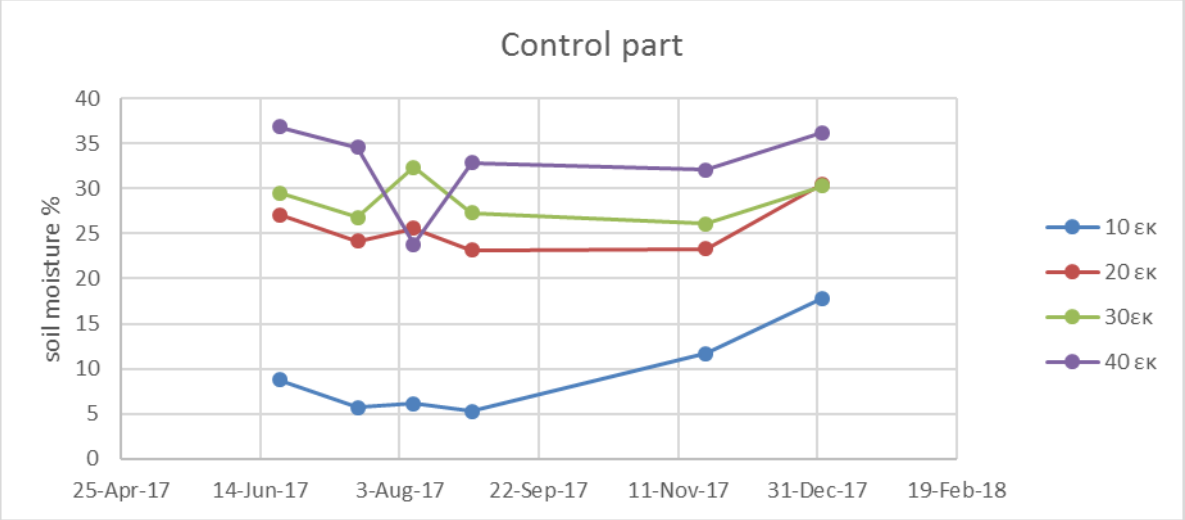
Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Thomakis	Olive	Control	6,4	45,2	150	659	64	1111,0	3,773	43,980	7,3
		Demo	6,4	61,2	126	870	82	292,3	0,990	11,460	7,3

2.1.2.2. Farm 18.03 Olive – Kariotaki - Irrigated

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Kariotaki	Olive	3.44	3.74

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3]	IR = annual irrigation records [m^3]

Kariotaki	Olive	447	485.7

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Kariotaki	Olive	7865	6667

Leaf nutritient

FARMER	CROP						
			N%	P%	K%	Ca%	Mg%
Kariotaki	Olive	Control	1,33	0,136	1,31	2,05	0,175
		Demo	1,48	0,118	1,23	1,87	0,176

Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Kariotaki	Olive	Control	3,4	0,1	98	7675	140	12,8	0,046	2,353	1,5
		Demo	5,9	3,8	106	7256	149	14,6	0,062	1,780	0,5

Water Runoff

Farmer	date	Runoff (L)	
		TRADITIONAL	DEMONSTRATION
Kariotaki	12/12/2017	3.85	2.88
	25/1/2018	19.23	9.62
	15/3/2018	9.62	6.73

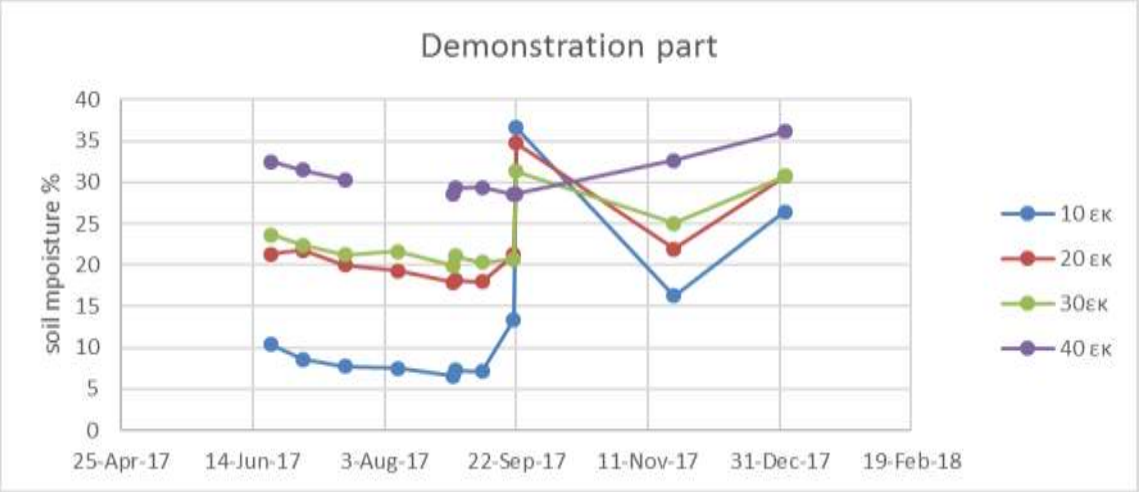
Figure 29. Traps for monitoring the amount of surface runoff

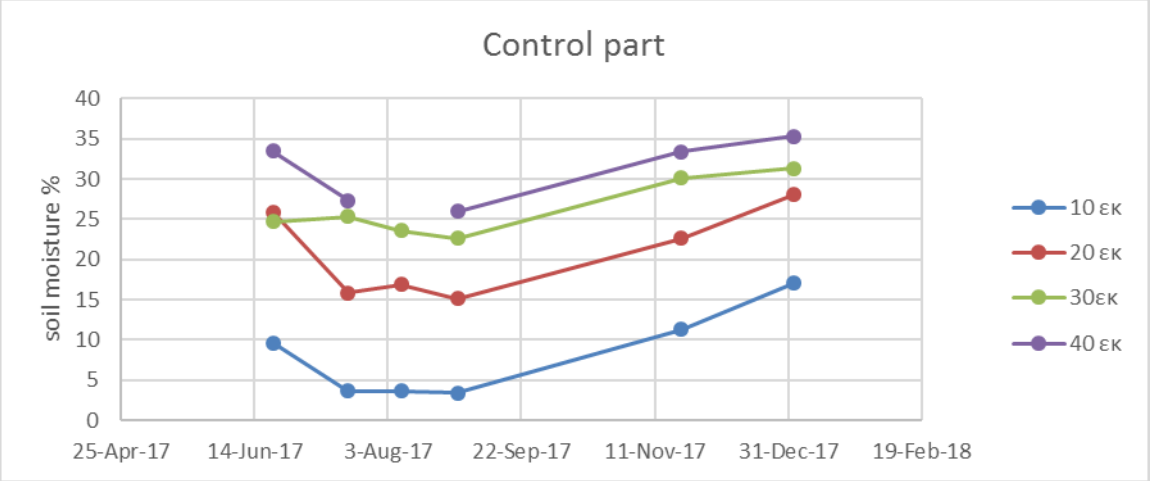
2.1.2.3. Farm 19.02 Olive – Mamidakis - Irrigated

The parcel was replaced

2.1.2.4. Farm 17.01 Olive – Kantilaki - Irrigated

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Kantilaki	Olive	5.21	3.93

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3]	IR = annual irrigation records [m^3]
Kantilaki	Olive	154.2	885.00

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Kantilaki	Olive	7143	6000

Leaf nutritient

FARMER	CROP						
			N%	P%	K%	Ca%	Mg%
Kantilaki	Olive	Control	1,55	0,101	0,55	2,14	0,216
		Demo	1,58	0,106	0,81	2,54	0,216

Soil nutritient

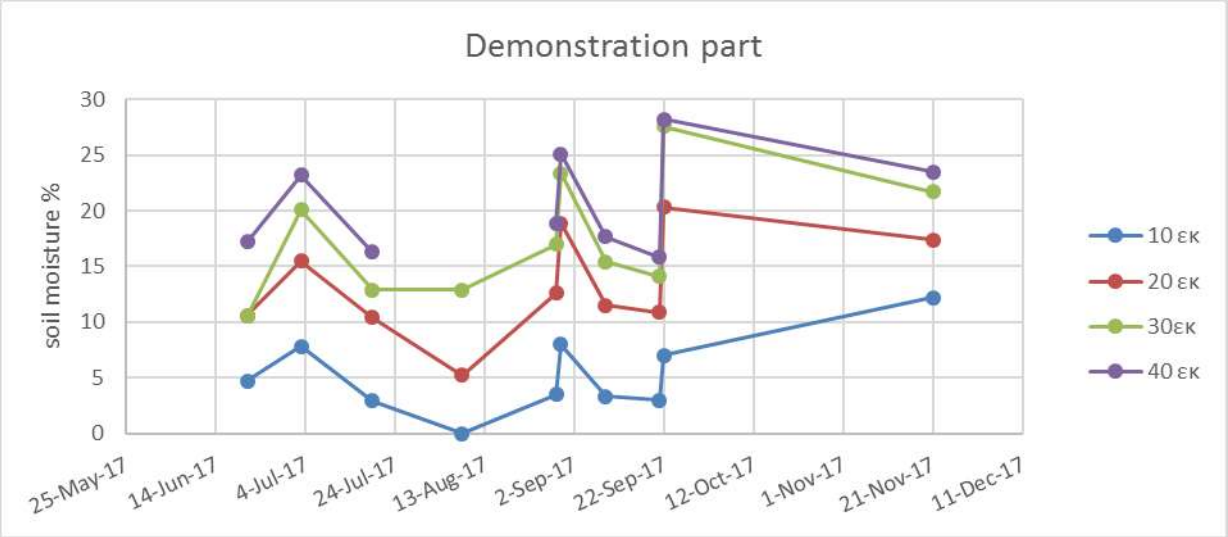
FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Kantilaki	Olive	Control	17,9	7,8	148,0	6012,0	188,0	1,9	0,3	4,9	3,0
		Demo	9,1	23,8	155,0	6370,0	122,5	2,4	0,9	3,9	7,8

2.1.2.5. Farm 25.02 Olive – Paraskakis Em.- - Irrigated

The parcel was replaced

2.1.2.6. Farm 24.02 Olive – Paraskakis Al. - Rainfed

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Paraskakis	Olive	3.37	3.93

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3]	IR = annual irrigation records [m^3]
Paraskakis	Olive	142	576.92

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Paraskakis	Olive	13953	4545

Leaf nutritient

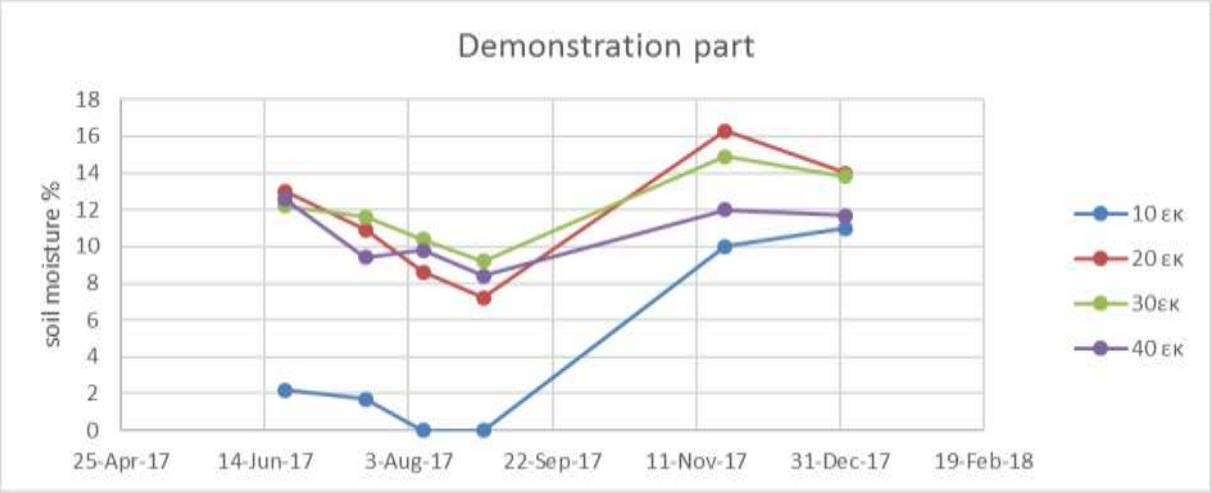
FARMER	CROP						
			N%	P%	K%	Ca%	Mg%
Paraskakis	Olive	Control	1,56	0,107	0,81	2,24	0,247
		Demo	1,56	0,107	0,81	2,24	0,247

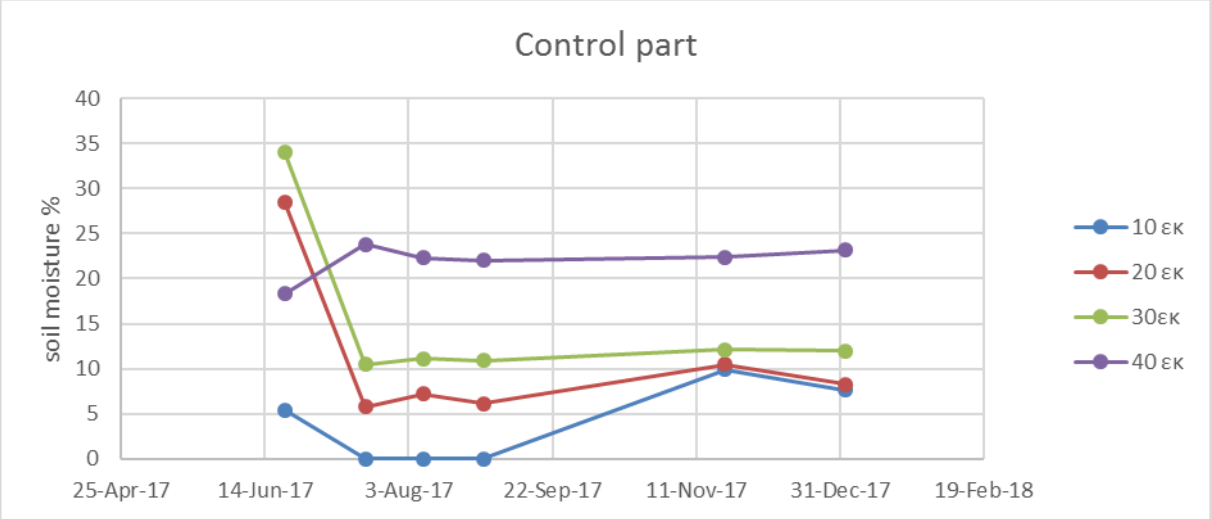
Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Paraskakis	Olive	Control	8,2	8,8	41,0	5132,0	46,0	2,2	0,0	1,9	0,0
		Demo	7,4	13,2	70,0	5953,0	62,8	2,3	0,2	4,0	0,0

2.1.2.7. Farm 01.01 Olive – Vagionaki G. - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the ield.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Vagionaki G.	Olive	4.52	3.75

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Vagionaki G.	Olive	6757	5500

Leaf nutritient

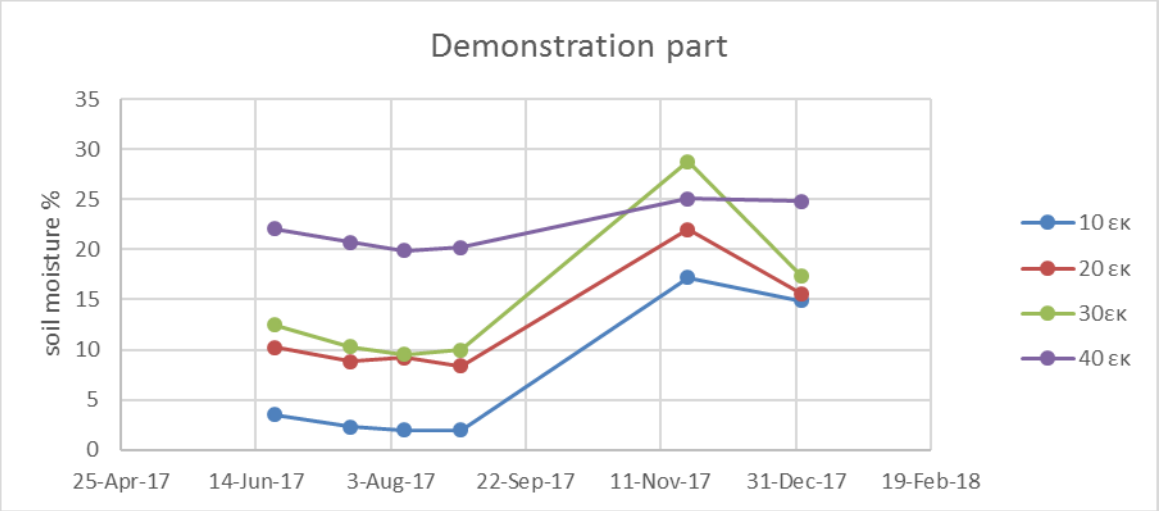
FARMER	CROP						
			N%	P%	K%	Ca%	Mg%
Vagionaki G.	Olive	Control	1,74	0,137	1,36	1,43	0,204
		Demo	1,58	0,151	1,57	1,67	0,251

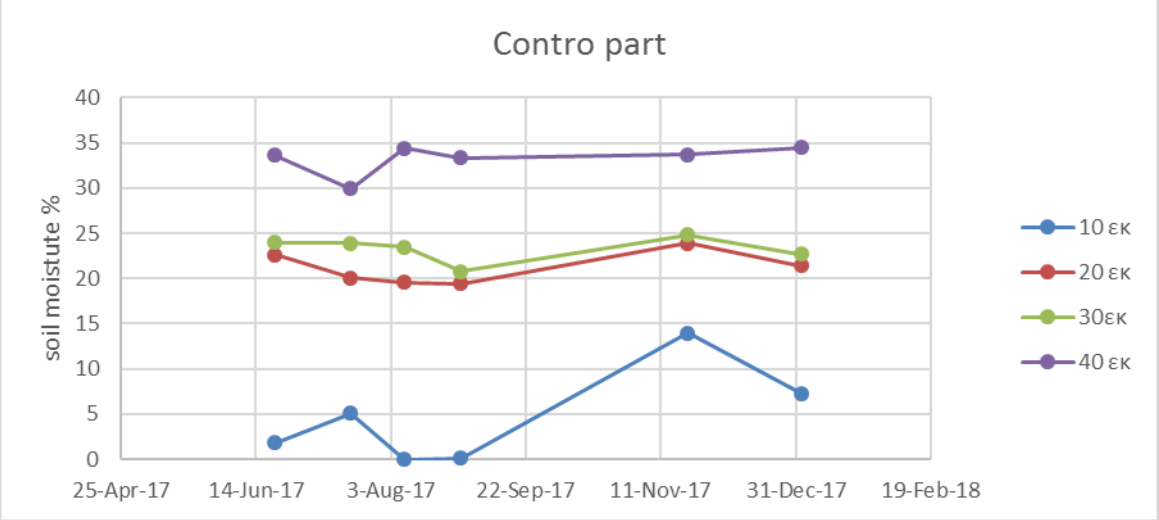
Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Vagionaki G.	Olive	Control	59,3	148,1	309,1	1387,0	222,4	575,9	1,7	12,0	3,2
		Demo	18,1	62,7	98,4	1386,0	151,0	166,5	0,6	8,8	2,2

2.1.2.8. Farm 02.02 Olive – Vagionakis N - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.).

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Vagionakis N.	Olive	4.39	4.85

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Vagionakis N.	Olive	6400	5600

Leaf nutritient

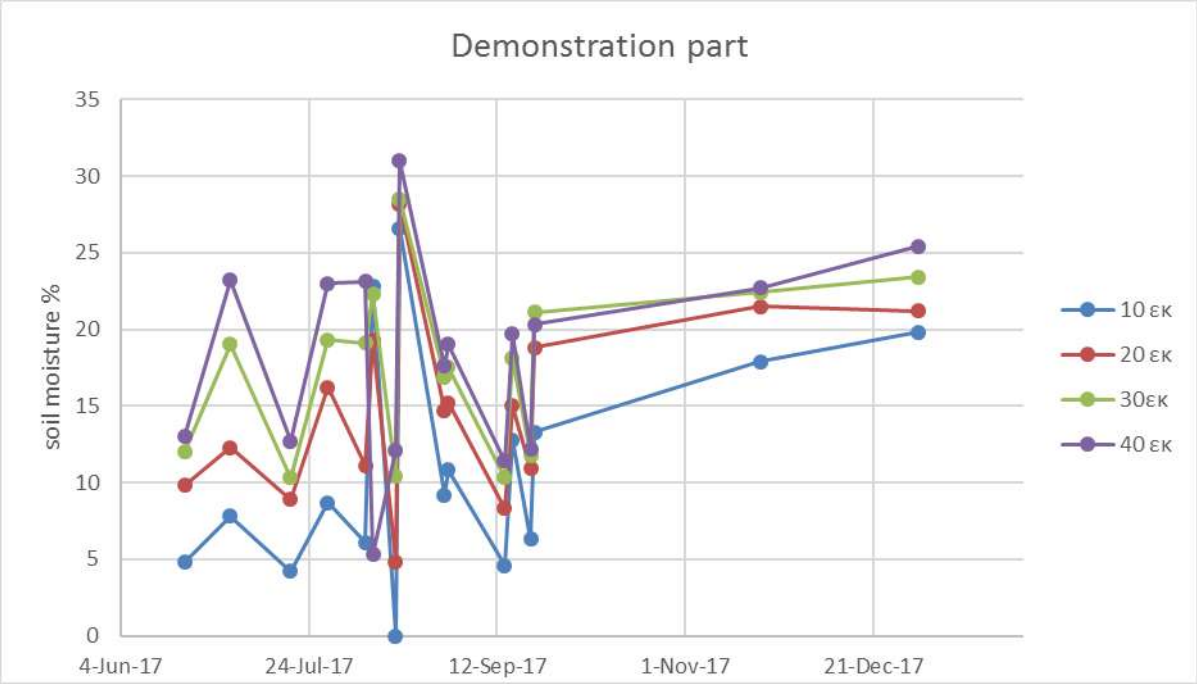
FARMER	CROP						
			N%	P%	K%	Ca%	Mg%
Vagionakis N.	Olive	Control	1,74	0,142	0,60	2,03	0,415
		Demo	1,72	0,158	0,57	1,84	0,393

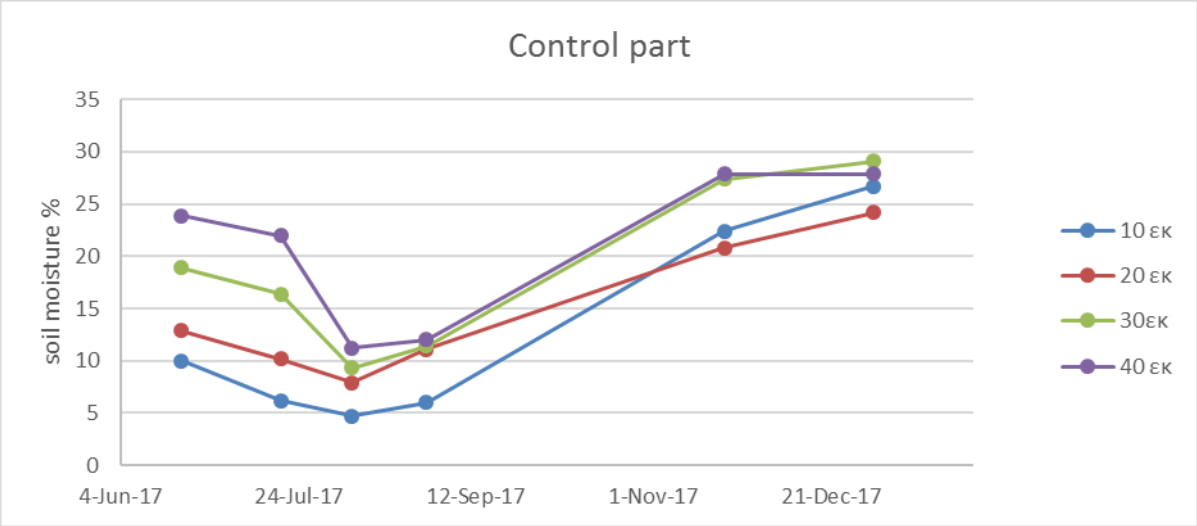
Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Vagionakis N.	Olive	Control	3,4	3,6	51,5	1050,0	232,6	613,9	0,7	2,2	0,0
		Demo	0,5	72,6	36,3	723,1	128,6	806,7	1,1	2,7	0,1

2.1.2.9. Farm 28.01 Citrus – Antonogiannaki - Irrigated

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Antonogiannaki	Citrus	4.68	2.61

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3]	IR = annual irrigation records [m^3]
Antonogiannaki	Citrus	1052.63	1906.30

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Antonogiannaki	Citrus	11111	13889

Leaf nutritient

FARMER	CROP		N%	P%	K%	Ca%	Mg%
Antonogiannaki	Citrus	Control	2,34	0,160	1,64	4,60	0,116
		Demo	2,35	0,154	1,35	5,26	0,126

Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Antonogiannaki	Citrus	Control	17,6	19,5	109,2	2207,0	95,0	22,7	1,0	3,4	3,1
		Demo	13,2	13,4	95,8	1559,0	57,9	25,9	0,4	3,7	3,4

2.1.2.10. Farm 19.01 Citrus – Mamidakis - Irrigated

The parcel was replaced

2.1.2.11. Farm 02.03 Olive – Vagionakis N –new field - Rainfed

Recording of soil moisture
No records in 2017

Recording of leaf area index (LAI)
No records in 2017

Fruit yield
No records in 2017

Leaf nutritient
No records in 2017

Soil nutritient

FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Vagionakis N.	Olive	Control	6,2	19,2	58,1	983,6	165,0		2,4	4,0	1,1
		Demo	11,9	27,5	92,0	1056,0	160,0	908,6	1,5	4,6	1,5

2.1.2.12. Farm 12.01 Olive – Nikolakaki –new field - Irrigated

Recording of soil moisture
No records in 2017

Recording of leaf area index (LAI)
No records in 2017

Fruit yield
No records in 2017

Leaf nutritient
No records in 2017

Soil nutritient

FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Nikolakaki.	Olive	Control	4,9	122,4	344,6	1006,0	88,6	722,4	2,4	17,2	16,6
		Demo	8,3	16,9	82,5	2076,0	92,6	4,9	0,6	3,1	6,4

Water Runoff

Farmer	date	Runoff (L)	
		TRADITIONAL	DEMONSTRATION
Nikolakaki	12/12/2017	-	-
	25/1/2018	-	-
	15/3/2018	0.00	19.23

2.1.2.13. Farm 12.02 Citrus – Nikolakaki –new field - Irrigated

Recording of soil moisture
No records in 2017

Recording of leaf area index (LAI)
No records in 2017

Fruit yield
No records in 2017

Leaf nutritient
No records in 2017

Soil nutritient

FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Nikolakaki.	Citrus	Control	14,2	121,0	158,5	3050,0	112,8	33,7	1,8	2,7	3,6
		Demo	7,3	45,8	51,7	1601,0	90,0	6,2	1,0	1,4	0,8

2.1.2.14. Meteorological data sets

Table 3. Monthly meteorological data sets from Voukolies station

Month.	Sum of RAIN	Average of SOLAR RADIATION	Average of TEMPERATURE
May	80,60	272,23	20,16
Jun	2,60	306,96	24,07
Jul	0,60	303,50	26,28
Aug	0,00	270,70	25,45
Sep	51,80	219,07	23,30
Oct	57,60	158,03	18,05
Nov	53,20	118,87	14,92
Dec	125,20	86,40	13,29
Grand Total	**371,60**	**216,99**	**20,69**

Figure 30. Meteorological station in Voukolies – Platanias area

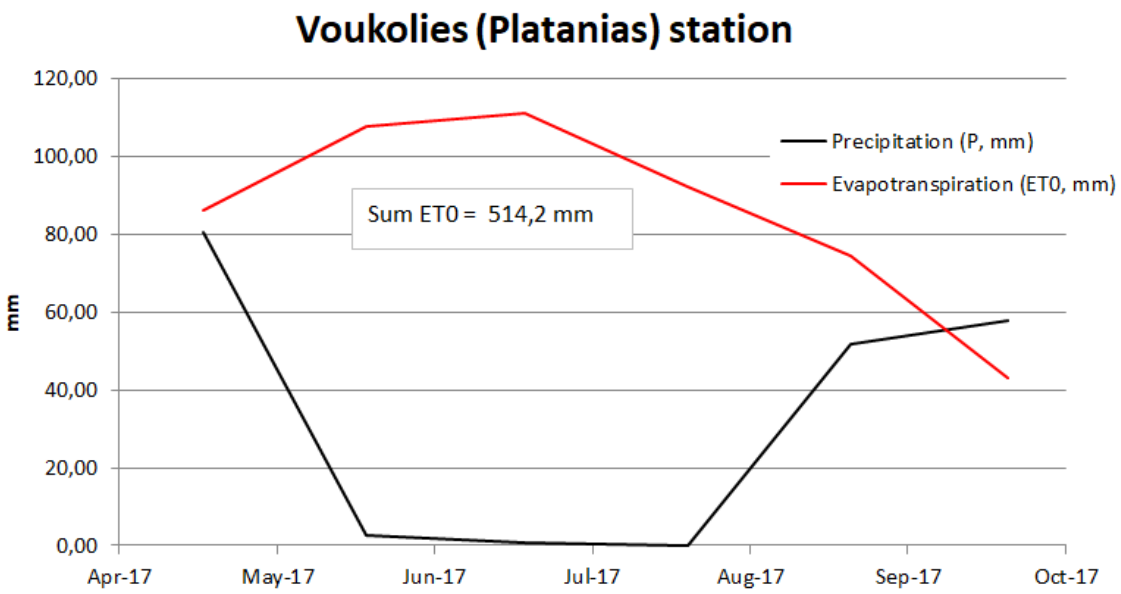


Figure 31. Precipitation and ET0 reported for the irrigation period 2017

2.2. Pilot area of Mirabello

2.2.1. Overview of 1st year of application in Mirabello area

General information about the pilot area, crops, farms per crop included.
In Mirabello area the only pilot crop was olive and the 10 slots was dedicated to this single crop. In this side of the island, irrigated orchards were limited in the northern part of Havgas-Milatos basin and the typical management status in the largest part of the area was that of rainfed orchards.

General comments about problems faced on year 1 and the causing factors.
Concerning the monitoring equipment installation, there was a difficulty in installing the soil moisture access tubes in several farms of the area, due to rocky and shallow soil profiles. Despite the difficulty, access tubes were installed in all farms, but not always in the intented soil depth.
Concerning the application of agricultural practices, most of them were applied as scheduled in Mirabello area. As in Platanias, the only two practices that were not applied were summer pruning and application of kaoline. Cover crop was applied as scheduled in all farms, but in some cases the effectiveness of the practice (cover crop emergence and growth) was not high due to grazing. Since this is a problem that cannot be controlled by the farmer or the project team, cover crops will not be applied in the coming years in these farms.
Concerning the application of practices by the farmers in the control part of the field, a significant problem was recorded regarding the application of plant protection products. Significant pest control problems were observed, that reduced the yield in several orchards. Moreover, fertilizer application was minimal in the area, as compared to the typical olive tree requirements. Finally, farmers seem to change the practices they apply in their farms, moving towards the project approach, as compared to the recording of practices in action C.1. Therefore, one farmer started applying pruning in his orchard, another one applied irrigation water in a previously rainfed farm and cover crops were applied (although not successfully) in two more organic farms.

Table 4. List of scheduled application of cultural practices in the area of Mirabello

Practice	Scheduled number of farms	Actual number of farms
Winter pruning	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2
Soil mulching	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2
Weed mowing	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2
Legumes showing	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2

Winter pruning	Total: 10 Olive: 8 Citrus: 2	Total: 10 Olive: 8 Citrus: 2

2.2.1.1. Farm 40.02

General farm overview

- Farmer / Manager: Chronakis Ioannis
- Crop: Olive
- Coordinates: Latitude 642141.7267, Longitude 3905767.845.
- Size: 0.4 ha / 20 trees
- Tree age: 56 years
- Water management: Rainfed
- Agrochemicals management: Organic farm

Figure 32. Overview of farm 40.02 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	-		
Fertilizing	Winter application: Fertigation: Foliar: 3	Details on relevant table	farmer
Legumes showing	Winter application:1	Dec 2016	farmer
Weed management	-		
Plant protection	Applications: 4	Zeolite, *Axiov N, B, Bathikur 1000 DP*	farmer

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
20/3/2017	Foliar		Zeolite, N, B
4/4/2017	Foliar		Zeolite, N, B
7/8/2017	Foliar		Zeolite, K
Total			

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 1	Details on relevant table	IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	0-0-50 Foliar	N: P: K: 2	
	Compost	N: 24.65 P: 20.63 K: 1.63	
	11-0-0	N: 59.98	

	organic	P: K:	
Total		N: 84.63 P: 20.63 K: 3.63	

Figure 33. Access tubes installation for soil moisture measurements

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied only in the demonstration part
- The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer only applied foliar application. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-Weed control was applied as weed mowing only in the demonstration part of the farm.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.2. Farm 40.01

General farm overview

- Farmer / Manager: Chronakis Ioannis
- Crop: Olive
- Coordinates: Latitude 642258.8156, Longitude 3905657.497.
- Size: 0.7 ha / 88 trees
- Tree age: 50 years
- Water management: Rainfed
- Agrochemicals management: Organic farm
- Mean yield: 3.8 tn/ha (considered typical for the area)

Figure 34. Overview of farm 40.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Reduction of surface runoff: Means of physical reduction of surface runoff were introduced along the contour lines in the orchard. The establishment was implemented during summer 2017.

Surface runoff: Traps for monitoring the amount of surface runoff were installed

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	-	-	
Fertilizing	Winter application: Fertigation: Foliar: 3	Details on relevant table	farmer
Legumes showing	Winter application:1	Dec 2016	farmer
Weed management	-		
Plant protection	Applications: 4	Zeolite, *Axiov N, B, Bathikur 1000 DP*	farmer

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
20/3/2017	Foliar		Zeolite, N, B
4/4/2017	Foliar		Zeolite, N, B
7/8/2017	Foliar		Zeolite, K
Total			

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	
Winter pruning	February 2017		IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 1	Details on relevant table	IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Table 6: Fertilizing by farmer in the control plot

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	0-0-50 Foliar	N: P: K: 2	
	Compost	N: 24.65 P: 20.63 K: 1.63	

	11-0-0 organic	N: 59.98 P: K:	
Total		N: 84.63 P: 20.63 K: 3.63	

Figure 35. Traps for monitoring the amount of surface runoff

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied only in the demonstration part
- The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer only applied foliar application. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-Weed control was applied as weed mowing only in the demonstration part of the farm.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.3. Farm 09.01

General farm overview

- Farmer / Manager: Dinerakis Zaharias
- Crop: Olive
- Coordinates: Latitude 643360.723, Longitude 3904827.734.
- Size: 1 ha / 270 trees
- Tree age: 46 years
- Water management: Rainfed
- Agrochemicals management: Conventional farm

Figure 36. Overview of farm 09.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths**.**

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	farmer
Fertilizing	Winter application: Fertigation: Foliar:	Details on relevant table	farmer
Weed management	-	-	
Plant protection	--		

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

No fertilizing records

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 2	Details on relevant table	IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	15-10-50 + 3 MgO Foliar	N: 0.3 P: 0.2 K: 1	
	15-10-50 + 3 MgO Foliar	N: 0.3 P: 0.2 K: 1	
	compost	N: 24.65 P: 20.63 K: 1.63	
	21-0-0 Soil application	N: 70.03 P: K:	
Total		N: 95.28 P: 21.03	

	K: 3.63	

Figure 37. Leaf Area Index measurement during summer 2017

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both parts of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer did not apply any fertilizers during winter. However, the non-application of nutrients by the farmer was a non-proper practice regarding to the requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.4. Farm 12.03

General farm overview

- Farmer / Manager: Lavrentaki Maria
- Crop: Olive
- Coordinates: Latitude 642259.5622, Longitude 3907792.944.
- Size: 0.35 ha / 60 trees
- Tree age: 86 years
- Water management: Rainfed
- Agrochemicals management: Organic farm
- Mean yield: 5.6 tn/ha (considered within typical limits for the area)

Figure 38. Overview of farm 12.03 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Reduction of surface runoff: Means of physical reduction of surface runoff were introduced along the contour lines in the orchard. The establishment was implemented during summer 2017.

Surface runoff: Traps for monitoring the amount of surface runoff were installed

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	January 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 3	Details on relevant table	farmer
Plant protection	Spray: 1		farmer
Weed management	Mowing: 1		farmer

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
29/12/2016	5-8-17 Foliar	N: 4.28 P: 6.86 K: 14.57 B: 0.86	*5-8-7+3+ 2%FeSO4+1%ZnSO4+1% Borax (30kg for 0.35 ha)*
29/12/2016	3-0-9 Foliar	N: 0.26 P: 0 K: 0.77	*Trace elements (3kg for 0.35 ha)*
27/1/2017	Soil application		*Zeolite 300kg*
1/3/2017	3-0-9 Foliar	N:0.39 P: 0 K: 1.17	*Trace elements (3kg for 0.35 ha)*
Total		N: 4.93 P: 6.86 K: 15.34 B: 0.86	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 2	Details on relevant table	IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

TDate	Type and way of application	Amount per nutrient (kg/ha)	Remarks
29/12/2016	5-8-17 Foliar	N: 4.28 P: 6.86 K: 14.57 B: 0.86	5-8-17+3+2%FeSO4+1%ZnSO4+1% Borax (30kg for 0.35 ha)
29/12/2016	0-0-50 Foliar	N: P: K: 2	
Jan 2017	compost	N: 24.65 P: 20.63 K:1.63	
Jan 2017	11-0-0 organic	N: 39.97 P: K:	
Total		N: 68.90 P: 27.49 K: 18.19 B: 0.86	

Figure 39. Means of physical reduction of surface runoff

Figure 40. Traps for monitoring the amount of surface runoff

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both parts of the field.
-The fertilizing schedule in both the demonstration part and the control included the use of winter application and foliar application. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-Weed control was applied as weed mowing both in the demonstration and control part.
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.5. Farm 33.02

General farm overview

- Farmer / Manager: Terzis Georgios
- Crop: Olive
- Coordinates: Latitude 642419.5218, Longitude 3908703.308.
- Size: 0.4 ha / 98 trees
- Tree age: 36 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 41. Overview of farm 33.02 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water

trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	-		
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 4	Details on relevant table	farmer
Irrigation	Number: 10 Total amount: 159.6 mm	Details on relevant table	farmer
Weed management	-		
Plant protection	--		

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
20/3/2017	76.92	
19/5/2017	76.92	
19/6/2017	76.92	
29/6/2017	138.46	
26/7/2017	272.73	
6/8/2017	281.82	
9/9/2017	209.09	
20/9/2017	254.55	
26/10/2017	209.09	
Total	**1596.50**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
9/4/2017	20-20-20 Foliar	N: 0.6 P: 0.6 K: 0.6	
7/5/2017	20-20-20 Foliar	N: 0.6 P: 0.6 K: 0.6	
19/6/2017	20-20-20 Foliar	N: 0.6 P: 0.6 K: 0.6	
16/7/2017	20-20-20 Foliar	N: 0.6 P: 0.6 K: 0.6	
Total		N: 2.4 P: 2.4 K: 2.4	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 2 Foliar:	Details on relevant table	IOTSP's contractor
Irrigation	Number: 11 Total amount: 120.3 mm	Details on relevant table	FOR's Agronomist
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
20/3/2017	76.92	
19/5/2017	76.92	
19/6/2017	76.92	
29/6/2017	138.46	
29/7/2017	116.67	
2/8/2017	123.33	
25/8/2017	126.67	
30/8/2017	100.00	
8/9/2017	106.67	

20/9/2017	103.33	
2/11/2017	156.67	
Total	**1202.56**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
25/8/2017	15-10-50-3 Fertigation	N: 6 P: 4 K: 20	
30/8/2017	15-10-50-3 Fertigation	N: 6 P: 4 K: 20	
	compost	N: 24.65 P: 20.63 K:1.63	
	26-0-0 + 8CaO Soil application	N: 79.93 P: K:	
Total		N: 116.58 P: 28.63 K: 41.63	

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied only in the demonstration part of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and fertigation, while the farmer applied winter application and foliar application. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-The amount of irrigation water was at comparable levels in both parts of the field, with higher amount of water applied in the control part (1596.50 m^3/ha) as compared to demontration (1202.56 m^3/ha).
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.6. Farm 34.01

General farm overview

- Farmer / Manager: Tzagkournis Elefterios
- Crop: Olive
- Coordinates: Latitude 643347.4936, Longitude 3904976.376
- Size: 1.0 ha/ 220 trees
- Tree age: 51 years
- Water management: Rainfed
- Agrochemicals management: Organic farm

Figure 42. Overview of farm 34.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	-		
Fertilizing	Winter application: Fertigation: Foliar:	Details on relevant table	farmer
Weed management	Mowing:1	February 2017	farmer

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

No fertilizing records

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 1	Details on relevant table	IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	0-0-50 Foliar	N: P: K: 2	
	compost	N: 24.65 P: 20.63 K: 1.63	
	11-0-0 organic	N: 65.01 P: K:	
Total		N: 89.66 P: 20.63 K: 3.63	

Figure 43. Access tubes installation for soil moisture measurements

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied only in the demonstration part of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer did not apply any fertilizers during winter. However, the non-application of nutrients by the farmer was a non-proper practice regarding to the requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.7. Farm 30.03

General farm overview

- Farmer / Manager: Stefanakis Fedon
- Crop: Olive
- Coordinates: Latitude 642904.994, Longitude 3905899.207
- Size: 0.5 ha / 108 trees
- Tree age: 46 years
- Water management: Non-irrigated
- Agrochemicals management: Conventional farm

Figure 44. Overview of farm 30.03 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Weed management	--		
Plant protection	--		

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
1/12/2016	20-20-20 Soil application	N: 128.00 P: 128.00 K: 128.00	320kg (0.5ha)
1/12/2016	B11% Soil application	B: 5.28	24kg (0.5ha)
Total		N: 128.00 P: 128.00 K: 128.00 B: 5.28	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 1	Details on relevant table	IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	15-10-50 Foliar	N: 0.6 P: 0.4 K: 2	
	compost	N: 24.65	

		P: 20.63 K:1.63	
	26-0-0 + 8CaO Soil application	N: 60 P: K:	
Total		N: 85.22 P: 21.03 K: 3.63	

Figure 45. Monitoring of practices by IOTSP

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both parts of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was more than the actual requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.8. Farm 36.01

General farm overview

- Farmer / Manager: Fragkakis Dimitrios
- Crop: Olive
- Coordinates: Latitude 643761.4961, Longitude 3907071.479
- Size: 1.6 ha/ 128 trees
- Tree age: 86 years
- Water management: Non-irrigated
- Agrochemicals management: Conventional farm

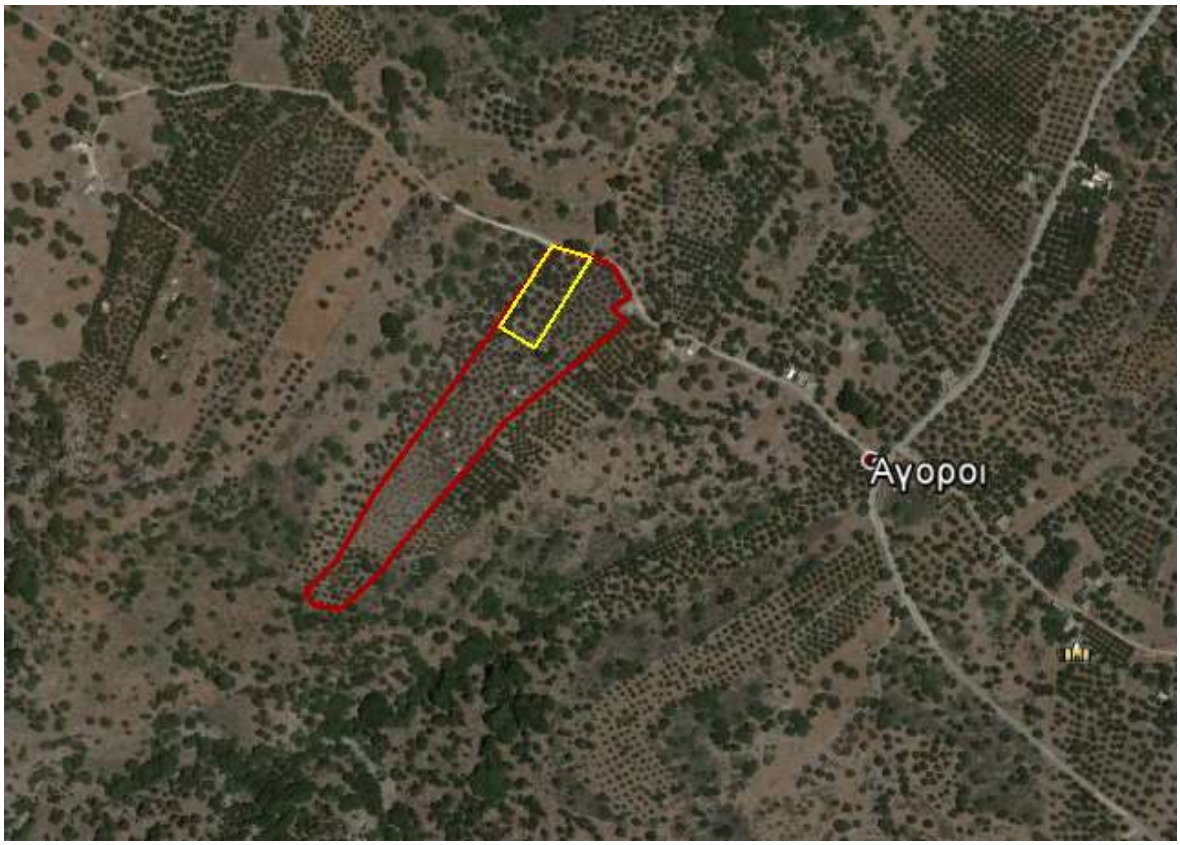


Figure 46. Overview of farm 36.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	March 2017	Medium pruning	farmer
Fertilizing	Winter application: Fertigation: Foliar:	Details on relevant table	farmer
Legumes sowing	--		
Weed management	--		

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

No fertilizing records

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 1	Details on relevant table	IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	15-10-50 Foliar	N: 0.6 P: 0.4 K: 2	
	compost	N: 24.65 P: 20.63 K:1.63	
	26-0-0 + 8CaO Soil application	N: 65 P: K:	
Total		N: 90.25 P: 21.03 K: 3.63	

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both parts of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer did not apply any fertilizers during winter. However, the non-application of nutrients by the farmer was a non-proper practice regarding to the requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.9. Farm 08.01

General farm overview

- Farmer / Manager: Dinerakis Konstantinos
- Crop: Olive
- Coordinates: Latitude 644967.8897, Longitude 3904092.032
- Size: 0.4ha /85 trees
- Tree age: 41 years
- Water management: Non-irrigated
- Agrochemicals management: Conventional farm

Figure 47. Overview of farm 08.01 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	farmer
Fertilizing	Winter application: Fertigation: Foliar:	Details on relevant table	farmer
Legumes sowing	--		
Weed management	--		

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

No fertilizing records

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: Foliar: 1	Details on relevant table	IOTSP's contractor
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
	15-10-50 Foliar	N: 0.6 P: 0.4 K: 2	
	compost	N: 24.65 P: 20.63 K:1.63	
	26-0-0 + 8CaO Soil application	N: 65 P: K:	
Total		N: 90.25 P: 21.03 K: 3.63	

Figure 48. Sown legumes in demonstration plot

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both parts of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and foliar application, while the farmer did not apply any fertilizers during winter. However, the non-application of nutrients by the farmer was a non-proper practice regarding to the requirements of olive trees.
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.1.10. Farm 04.05

General farm overview

- Farmer / Manager: Antoniadis Georgios
- Crop: Olive
- Coordinates: Latitude 641590.5379298, Longitude 3909015.8719782
- Size: 0.8 ha / 110 trees
- Tree age: 41 years
- Water management: Irrigated / drip irrigation
- Agrochemicals management: Conventional farm

Figure 49. Overview of farm 04.05 with the polygon of demonstration plot (yellow)

Installation of monitoring equipment

Irrigation network: A drip irrigation system was established in this pilot farm. Drip irrigation is a type of micro-irrigation that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants above the soil surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. This system operating at small discharges (2 or 4 or 6 lit/h), while water trickling onto the ground surface enters the soil profile and percolates downwards and outwards.

Recording of soil moisture: Three access tubes (two of 40cm and one of 100cm) were installed in each part of the field (demonstration and control plots) during spring 2017, for monitoring soil moisture at different soil depths at 3 spots per orchard. Soil

moisture recordings are performed using PR-2 sensors recording soil moisture at different soil depths.

Recording of irrigation water use: Two water meters were installed in order to record irrigation water usage (FOR agronomists) in control and demonstration plots after each irrigation event.

Fertigation system: A fertigation system was incorporated in the above mentioned irrigation system. Fertigation is the injection of water-soluble fertilizers into an irrigation system.

Application of practices in the control plot by the farmer

Practice	Dates or number of applications	Remarks	Applied by
Pruning	May and June 2017		farmer
Fertilizing	Winter application: 1 Fertigation: 0 Foliar: 0	Details on relevant table	farmer
Irrigation	Number: 10 Total amount: 93.8 mm	Details on relevant table	farmer

-*Irrigation*: More detailed report on irrigation. Discussion on farmer's approach

Date	Amount (m^3/ha)	Remarks
28/5/2017	85.71	
15/6/2017	85.71	
20/6/2017	109.38	
29/6/2017	68.75	
30/7/2017	140.63	
3/8/2017	184.38	
20/8/2017	85.78	
30/8/2017	51.88	
20/9/2017	81.72	
3/11/2017	43.75	
Total	**937.68**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on farmer's approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
20/2/2017	21-20-0 Soil application	N: 0.87 P: 0.83 K: 0.00 B: 0.17	Borax:1 kg P:2.5 kg 21-0-0: 2.5 kg
Total		N: 0.87 P: 0.83 K: 0.00 B: 0.17	

Application of practices in the demonstration plot

Practice	Dates or number of applications	Remarks	Applied by
Winter pruning	February 2017	Medium pruning	IOTSP's contractor
Fertilizing	Winter application: 1 Fertigation: 2 Foliar:	Details on relevant table	IOTSP's contractor
Irrigation	Number: 10 Total amount: 124.2 mm	Details on relevant table	FOR's Agronomist
Legumes sowing	October 2017		IOTSP's contractor
Weed management	Jun 2017 – 1 application		IOTSP's contractor

-*Irrigation*: More detailed report on irrigation. Discussion on ACW approach

Date	Amount (m^3/ha)	Remarks
28/5/2017	85.71	
15/6/2017	85.71	
29/6/2017	300.00	
30/7/2017	115.00	
3/8/2017	112.50	
25/8/2017	2.50	
30/8/2017	117.00	
8/9/2017	100.50	
20/9/2017	98.50	
3/11/2017	225.00	
Total	**1242.43**	

-*Fertilizing*: More detailed report on Fertilizing. Discussion on ACW approach

Date	Type and way of application	Amount per nutrient (kg/ha)	Remarks
25/8/2017	15-10-50 Fertigation	N: 6 P: 4 K: 20	
30/8/2017	15-10-50 Fertigation	N: 6 P: 4 K: 20	
	compost	N: 24.65 P: 20.63 K: 1.63	
	26-0-0 Soil application	N: 80 P: K:	
Total		N: 116.61 P: 28.63 K: 41.63	

Differentiation between farmer's and LIFE ACW approach

-Pruning was applied in both parts of the field.
-The fertilizing schedule in the demonstration part included the use of winter application and fertigation, while the farmer only applied fertilizers during winter. However, the application of nutrients by the farmer was minimal as compared to the actual requirements of olive trees.
-The amount of irrigation water was at comparable levels in both parts of the field, with slightly higher amount of water applied in the demonstration part (1242 m^3/ha) as compared to control (938 m3/ha).
-Weed control was applied as weed mowing in the demonstration part, while the farmer did not apply any weed control measures (weed mowing, herbicide, or soil tillage)
-Cover crops were applied only in the demonstration part of the farm.
-Organic matter was only applied in the demonstration part of the farm in the form of compost.

2.2.2. Overview of 1st year of monitoring in Mirabello area

According to the farm specific action plans that have been reported in Deliverable C.3.2 and to the protocols presented in the deliverable D1, the list of monitoring parameters in the Cretan areas are as follows:

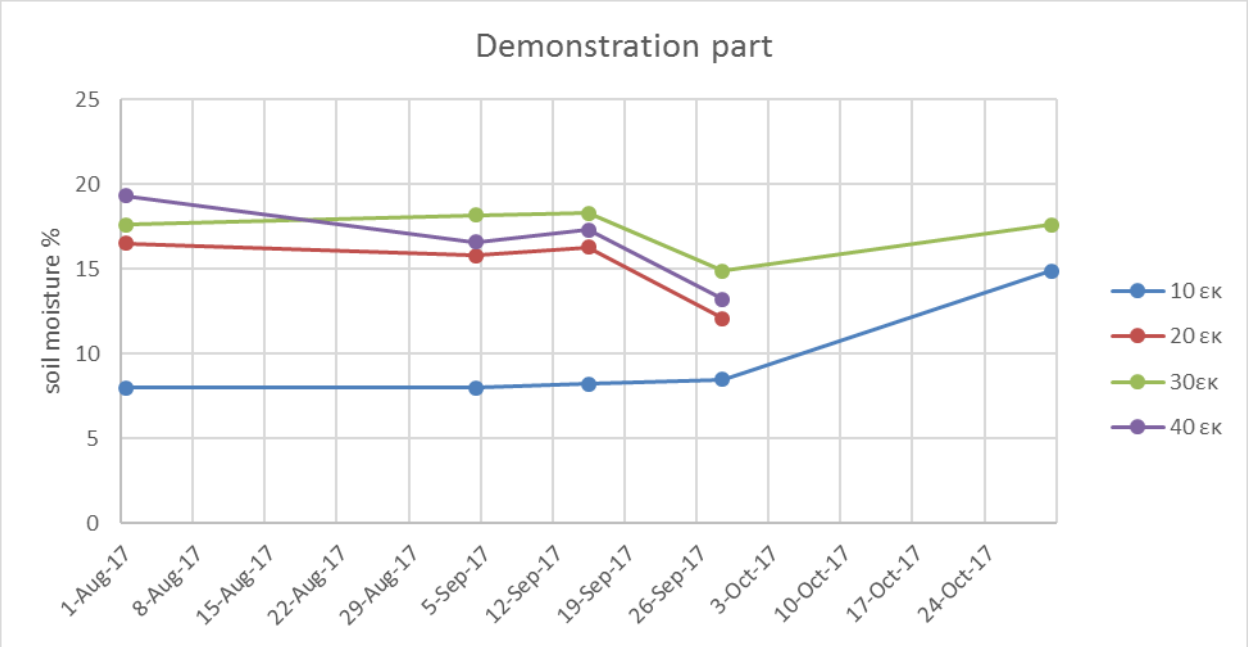
- Recording of applications
- Recording of soil moisture
- Recording of leaf area index (LAI)
- Soil sampling and analyses
- Leaf sampling and analyses
- Nitrate soil content
- Recording of irrigation water use
- Fruit yield
- Monitoring of meteorological data

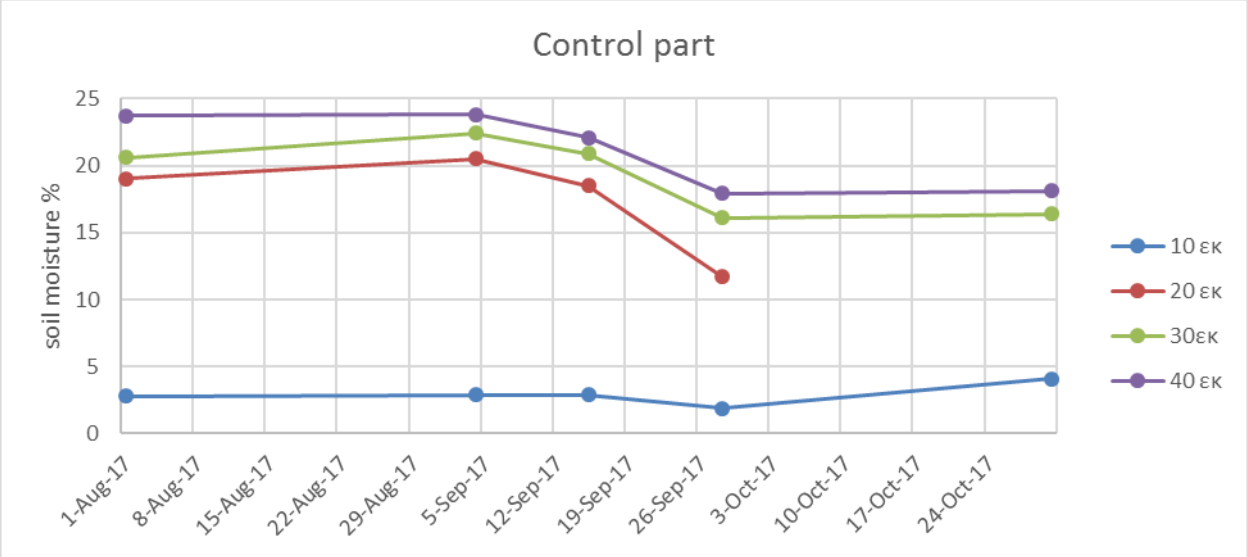
Table 5. List of scheduled installation of monitoring equipment in the area of Mirabello

Scheduled activity	Scheduled number of equipment	Responsible for installation
Meteorological stations	1	IOTSP in cooperation with Mirabello
Tubes for soil moisture sensors	60 (47 were installed)	IOTSP
Irrigation network	2	IOTSP
Barriers for reducing surface runoff	2 sets	IOTSP
Runoff water trap constructions	4	IOTSP

2.2.2.1. Farm 40.02 Olive – Chronakis - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Chronakis	Olive	1.97	3.15

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Chronakis	Olive	0	0

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Chronakis	Olive	Control	1,48	0,107	0,79	1,79	0,293
		Demo	1,26	0,104	0,80	1,74	0,280

Soil nutritient

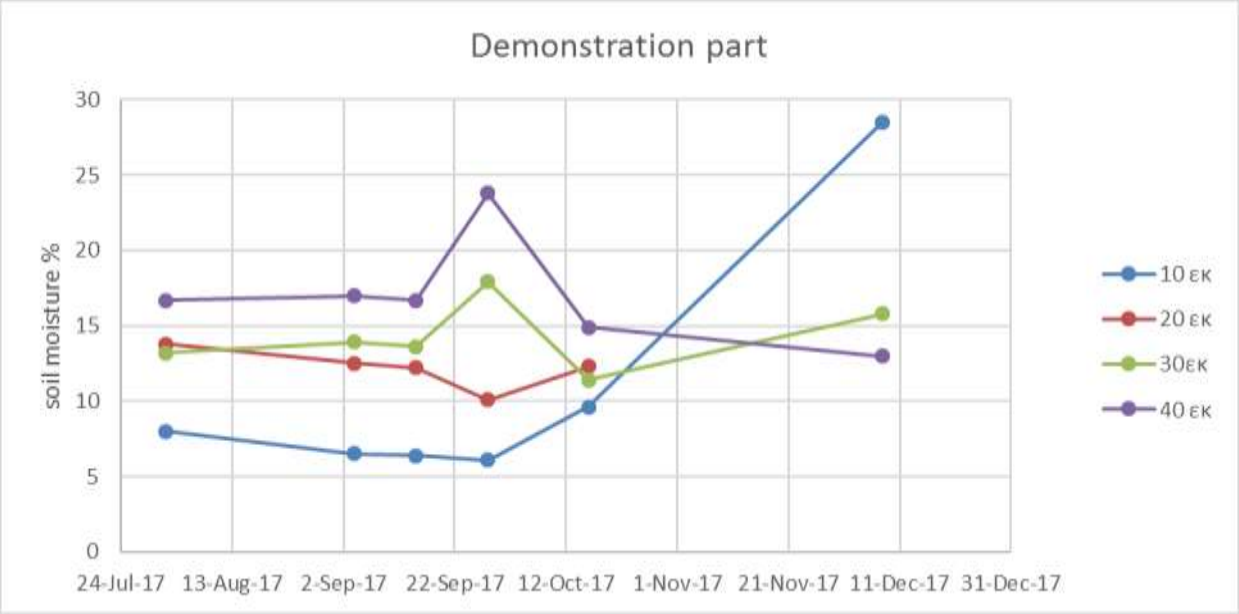
FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Chronakis	Olive	Control	39,60	7,13	306,00	3071,00	463,00	3,60	0,58	6,48	0
		Demo	14,70	17,80	316,50	2325,00	437,10	9,51	2,00	6,08	0,01

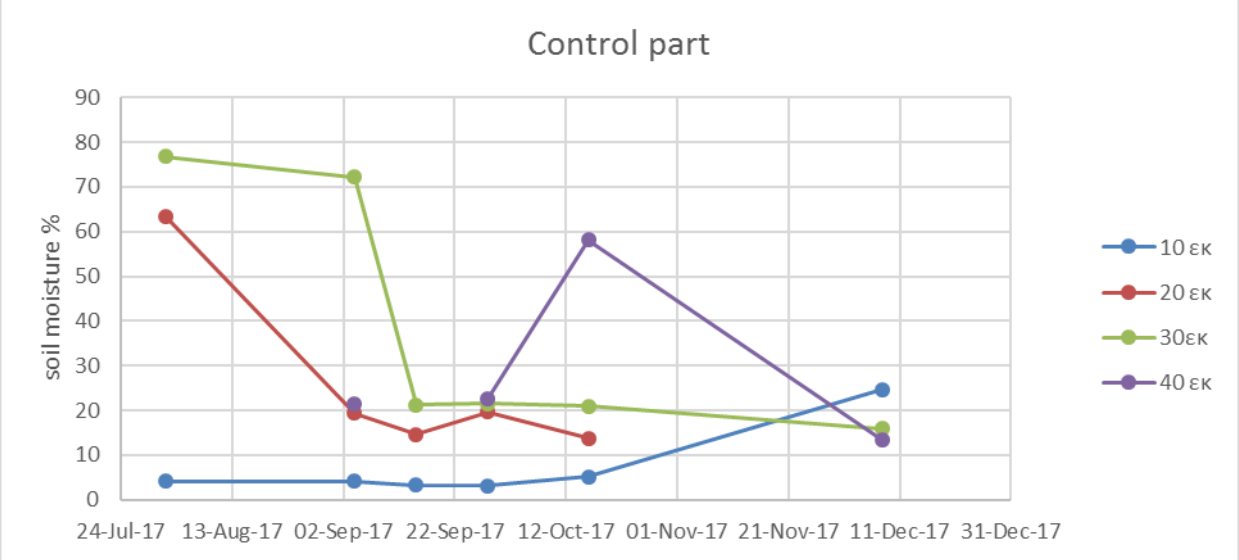
Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Chronakis	Olive	Control	10,20	6,96	5,98
		Demo	12,96	9,26	5,63

2.2.2.2. Farm 40.01 Olive – Chronakis - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Chronakis	Olive	1.82	1.83

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Chronakis	Olive	0	0

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Chronakis	Olive	Control	1,20	0,101	0,38	2,16	0,254
		Demo	1,25	0,090	0,46	1,79	0,221

Soil nutritient

FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Chronakis	Olive	Control	19,83	28,45	56,99	3547,00	171,00	38,63	0,66	6,94	0
		Demo	10,77	14,72	56,19	5448,00	164,70	3,25	0,94	3,52	0,12

Soil nitrate content

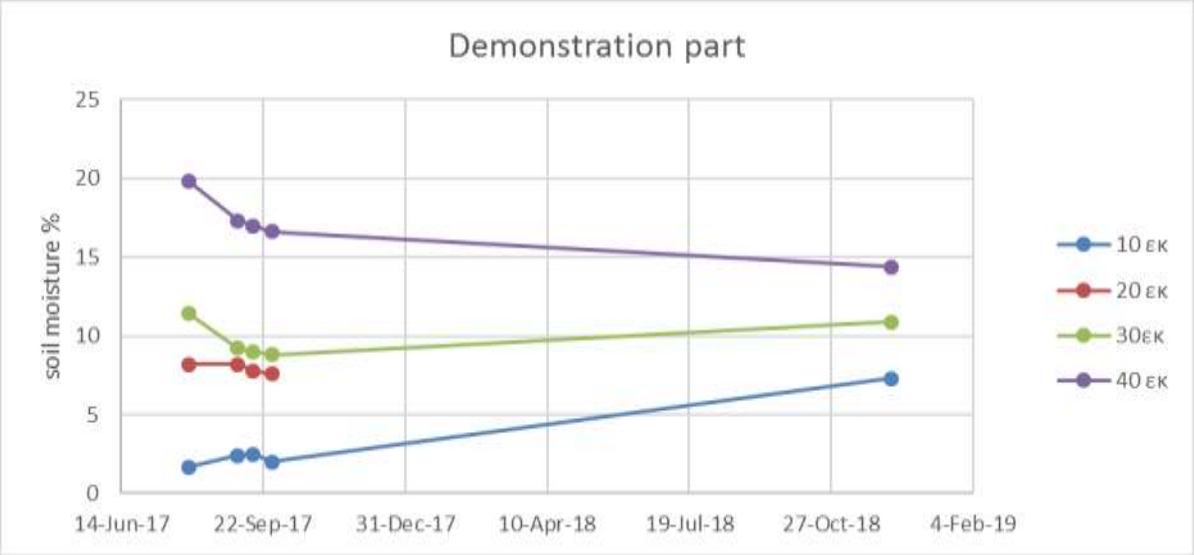
FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Chronakis	Olive	Control	6,75	4,20	4,71
		Demo	10,71	7,15	3,20

Water Runoff

Farmer	date	Runoff (L)	
		TRADITIONAL	DEMONSTRATION
Chronakis	7/12/2017	62.51	0.00
	12/1/2018	62.51	14.42
	22/1/2018	57.70	0.96
	21/3/2018	61.54	17.31

Farm 09.01 Olive – Dinerakis Z. - Rainfed

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Dinerakis Z	Olive	1.82	1.64

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Dinerakis Z	Olive	0	0

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Dinerakis Z	Olive	Control	1,13	0,106	0,66	1,53	0,298
		Demo	1,22	0,110	0,66	1,56	0,303

Soil nutritient

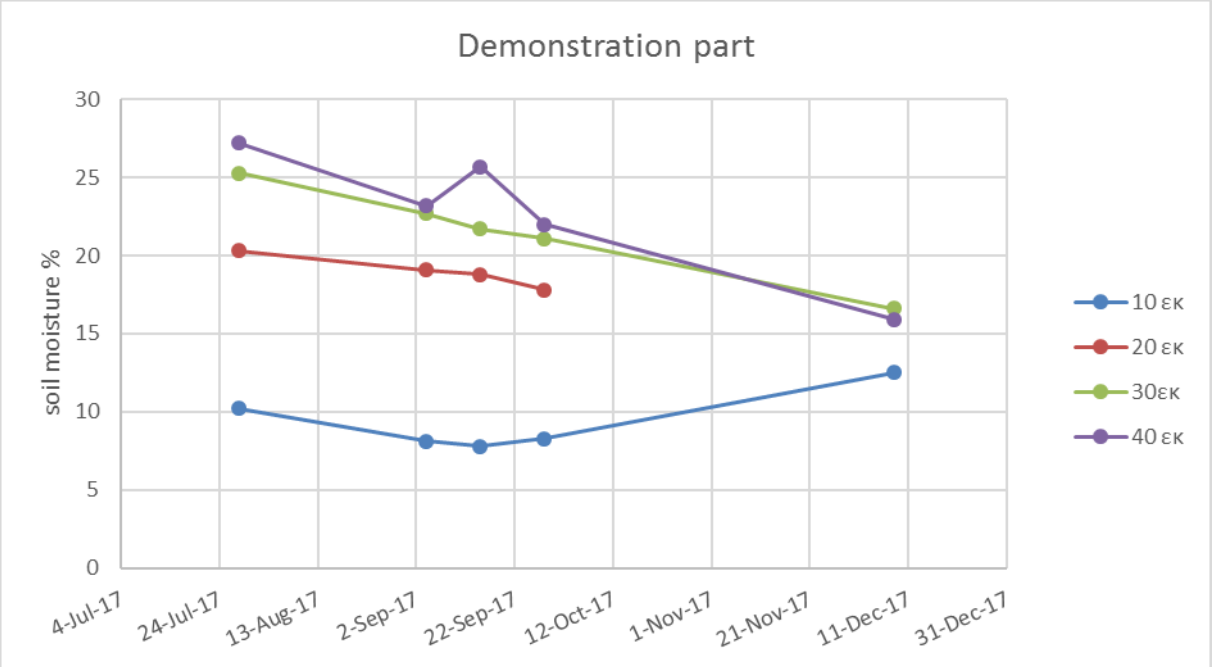
FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Dinerakis Z	Olive	Control	17,57	12,75	85,40	1991,00	315,80	3,73	0,99	2,92	0
		Demo	27,77	20,60	130,00	1813,00	348,20	3,44	0,99	3,42	0

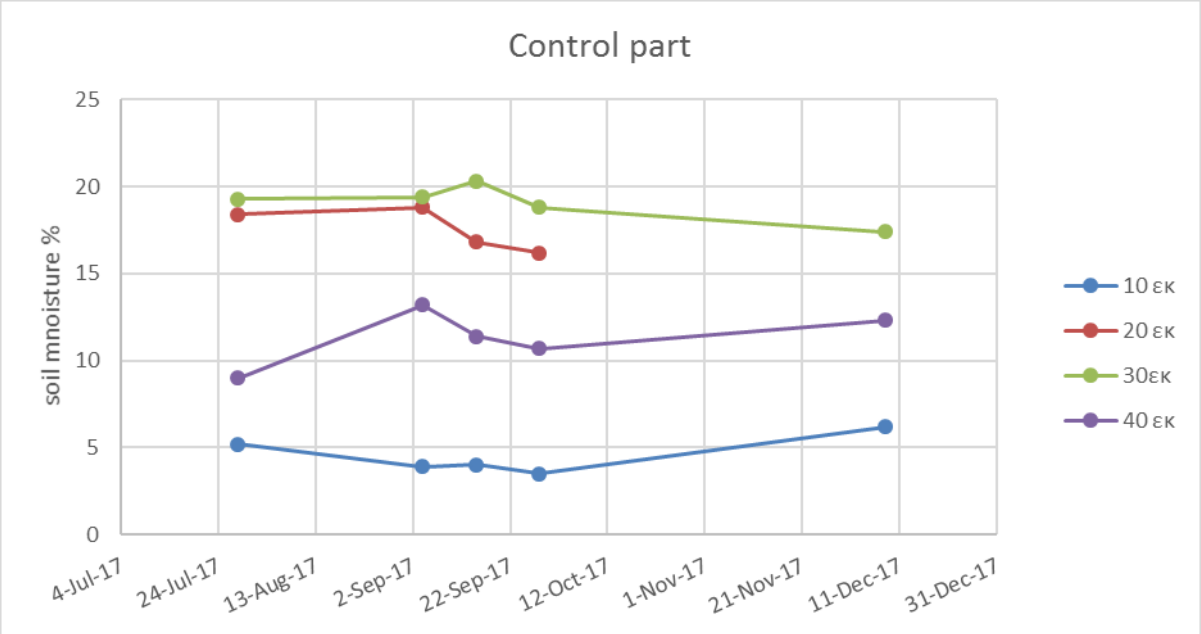
Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Dinerakis Z	Olive	Control	8,63	6,03	4,42
		Demo	5,85	7,18	4,40

2.2.2.3. Farm 12.03 Olive – Lavrentaki - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Lavrentaki	Olive	1.91	1.22

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Lavrentaki	Olive	0	0

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Lavrentaki	Olive	Control	1,10	0,091	0,57	1,40	0,154
		Demo	1,13	0,079	0,54	1,36	0,135

Soil nutritient

FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Lavrentaki	Olive	Control	44,80	5,28	294,00	5982,00	301,00	2,09	1,48	4,10	0
		Demo	14,70	4,77	235,70	5682,00	342,80	2,26	5,65	3,62	0

Soil nitrate content

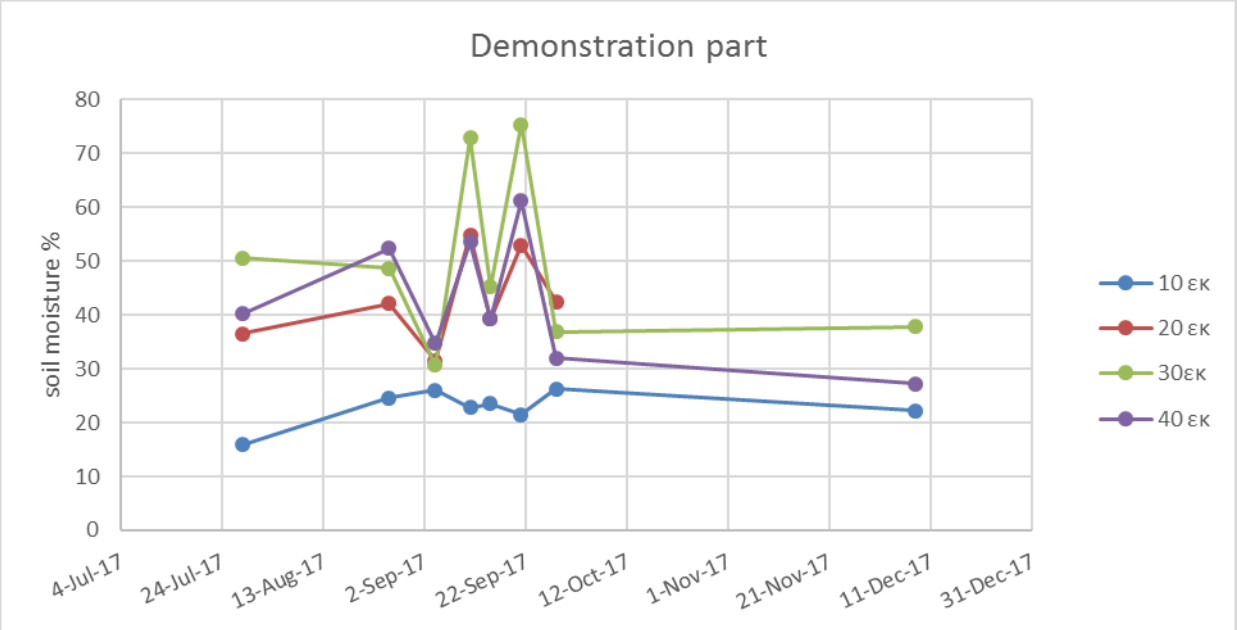
FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Lavrentaki	Olive	Control	16,59	12,71	9,76
		Demo	15,48	9,09	7,20

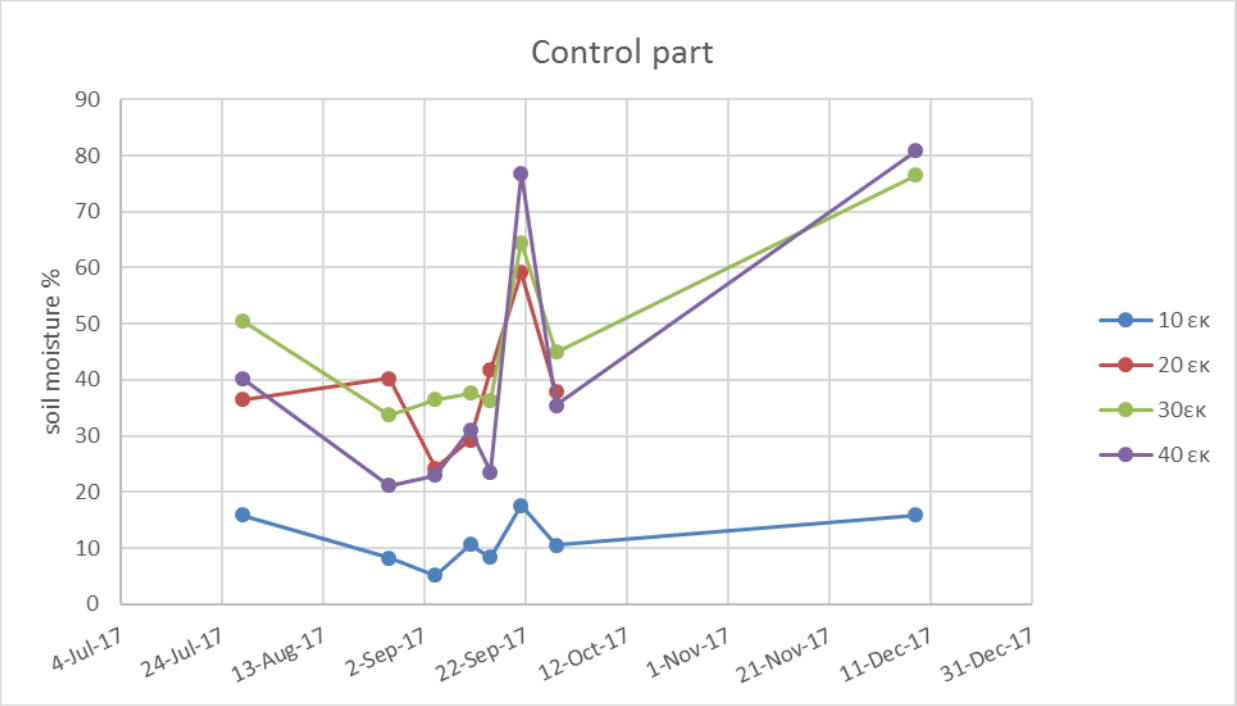
Water Runoff

Farmer	date	Runoff (L)	
		TRADITIONAL	DEMONSTRATION
Lavrentaki	7/12/2017	0.00	0.00
	12/1/2018	7.69	0.00
	22/1/2018	0.00	0.00
	21/3/2018	10.58	0.00

2.2.2.4. Farm 33.02 Olive – Terzis - Irrigated

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Terzis	Olive	1.90	1.27

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3 ha^{-1}]	IR = annual irrigation records [m^3 ha^{-1}]
Terzis	Olive	1596.50	1202.56

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Terzis	Olive	5400	6280

Leaf nutritient

FARMER	CROP	%					
			N	P	K	Ca	Mg
Terzis	Olive	Control	1,46	0,100	0,37	2,29	0,307
		Demo	1,34	0,103	0,39	1,83	0,322

Soil nutritient

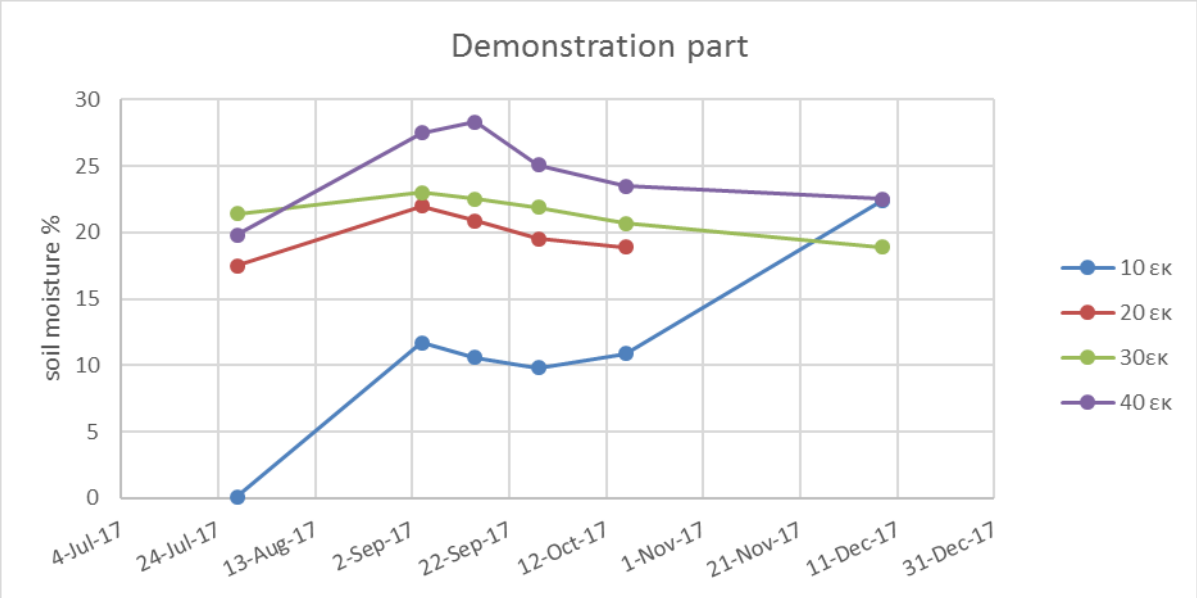
FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Terzis	Olive	Control	3,40	34,34	290,80	2897,00	578,20	0,67	2,13	6,52	0,84
		Demo	28,90	50,31	390,20	3172,00	637,90	1,10	1,52	4,76	0,61

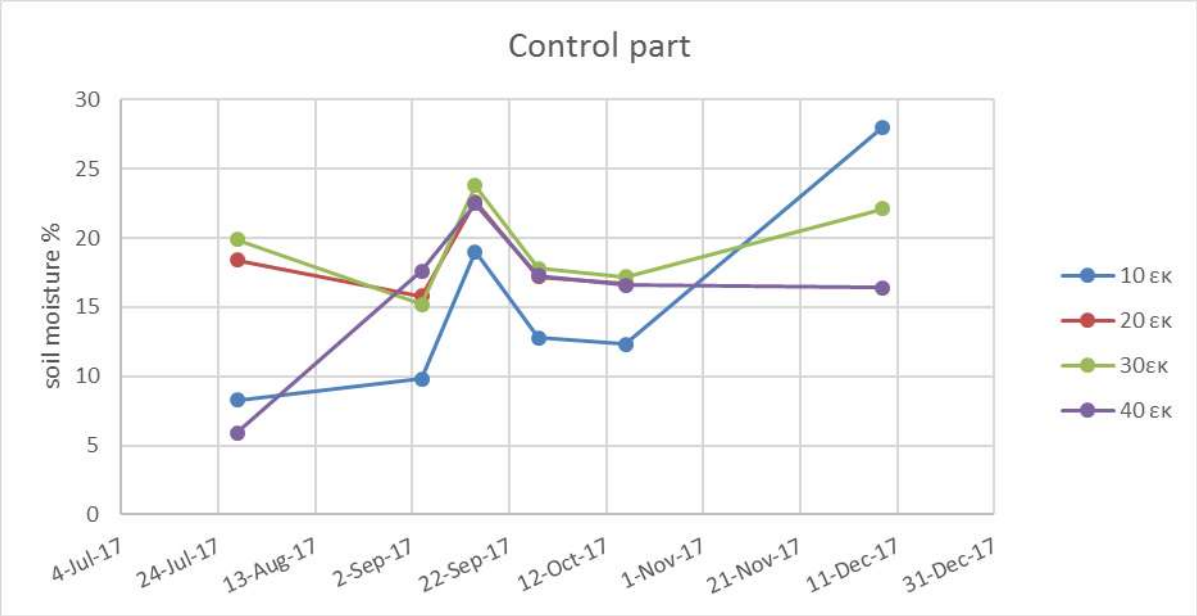
Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Terzis	Olive	Control	14,49	11,95	7,84
		Demo	19,23	12,42	12,90

2.2.2.5. Farm 34.01 Olive – Tzagkournis - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Tzagkournis	Olive	2.38	2.22

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Tzagkournis	Olive	196	970

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Tzagkournis	Olive	Control	1,58	0,119	0,64	1,98	0,218
		Demo	1,36	0,120	0,53	2,02	0,240

Soil nutritient

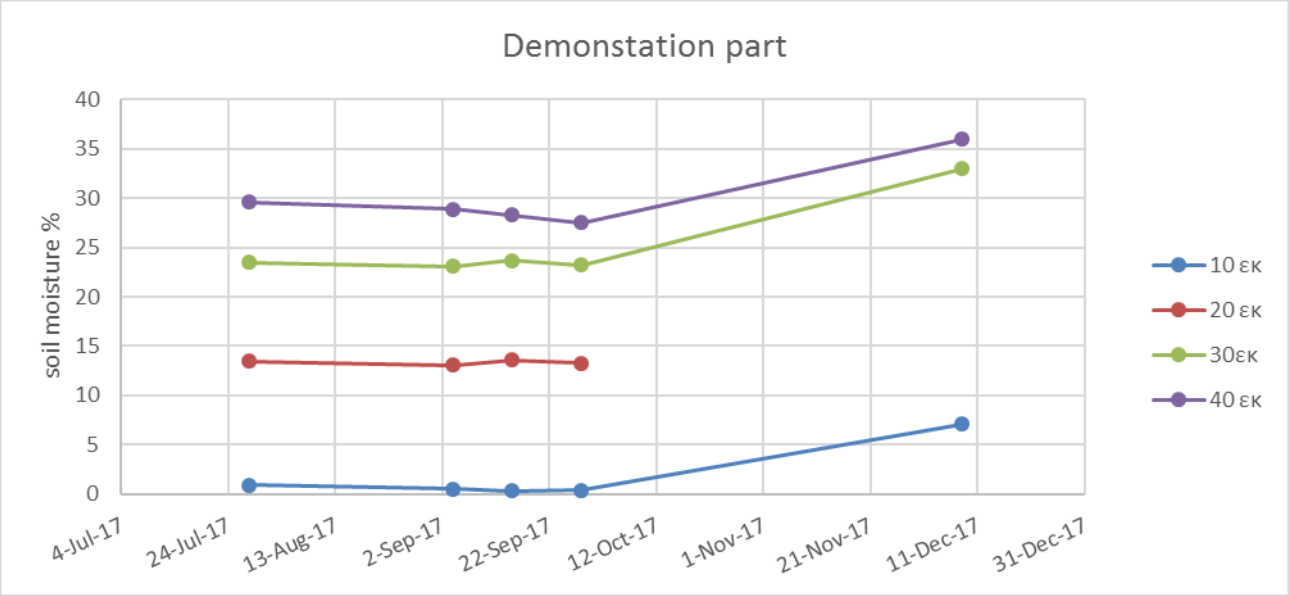
FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Tzagkournis	Olive	Control	41,93	70,50	146,60	3049,00	296,40	6,08	1,94	7,07	2,19
		Demo	90,66	132,60	392,30	2799,00	390,20	7,04	2,32	16,10	0,25

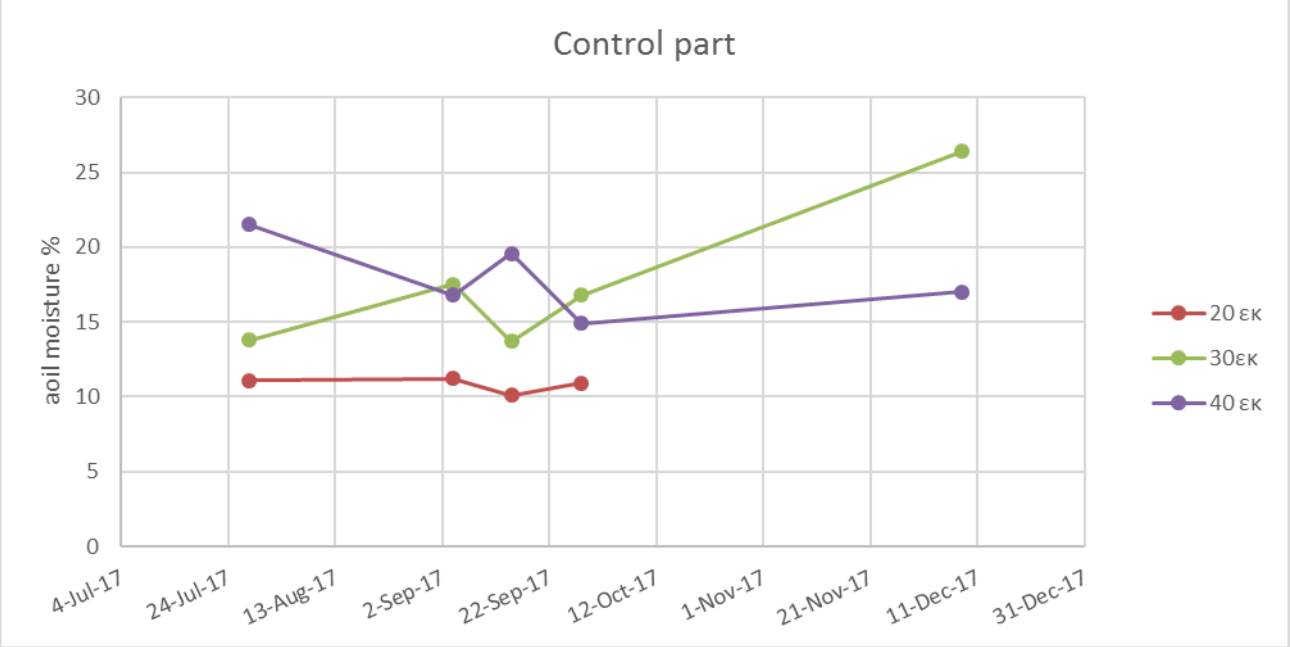
Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Tzagkournis	Olive	Control	18,14	16,90	9,92
		Demo	118,12	102,60	86,80

2.2.2.6. Farm 30.03 Olive – Stefanakis - Rainfed

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Stefanakis	Olive	1.23	1.81

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Stefanakis	Olive	0	0

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Stefanakis	Olive	Control	1,07	0,106	0,69	1,34	0,131
		Demo	1,17	0,112	0,66	1,71	0,152

Soil nutritient

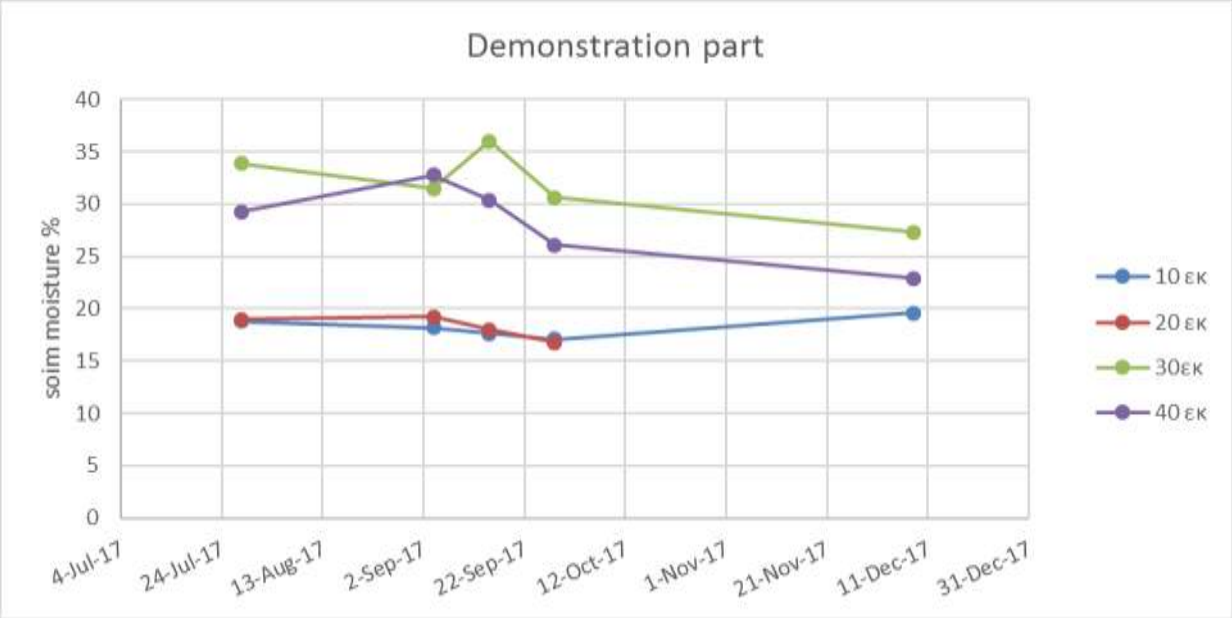
FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Stefanakis	Olive	Control	14,73	81,43	339,00	3038,00	206,10	23,58	2,05	24,69	3,51
		Demo	13,03	67,27	212,10	2374,00	153,80	18,32	1,80	25,28	3,21

Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Stefanakis	Olive	Control	9,39	6,85	6,63
		Demo	8,55	6,66	3,76

2.2.2.7. Farm 36.01 Olive – Fragkakis - Rainfed

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Fragkakis	Olive	1.48	1.63

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Fragkakis	Olive	0	0

Leaf nutritient

FARMER	CROP		%				
			N	P	K	Ca	Mg
Fragkakis	Olive	Control	1,14	0,116	0,57	1,30	0,130
		Demo	1,42	0,118	0,50	1,39	0,144

Soil nutritient

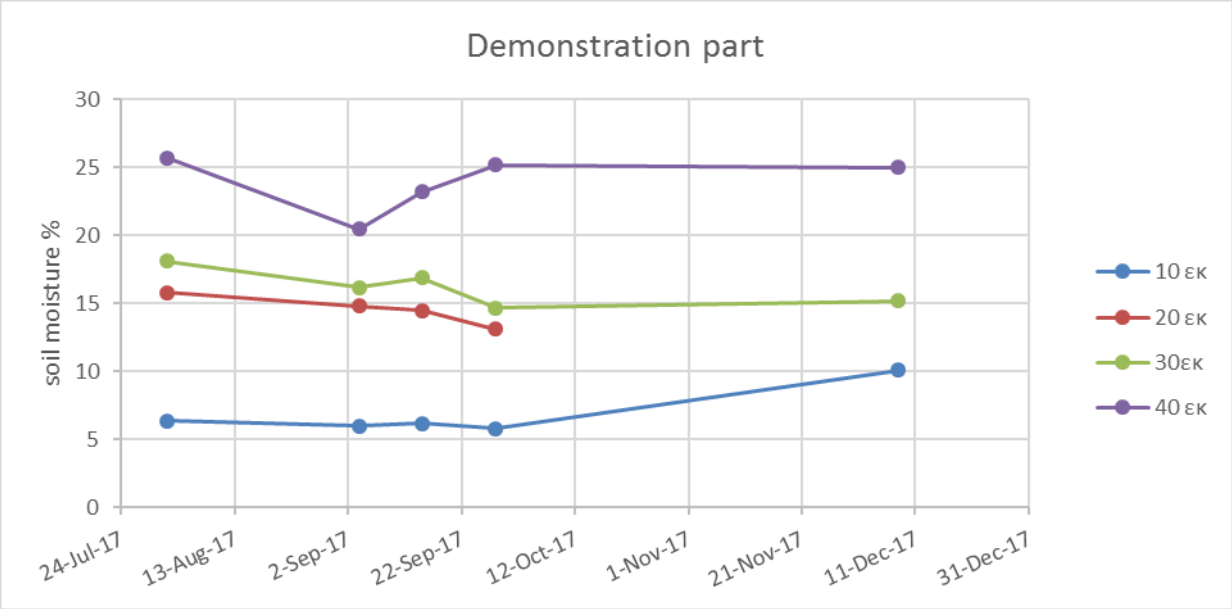
FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Fragkakis	Olive	Control	11,33	26,49	396,50	4031,00	247,90	5,45	1,99	24,13	7,61
		Demo	72,53	15,70	466,10	4241,00	289,00	3,66	2,53	22,27	6,35

Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Fragkakis	Olive	Control	21,74	15,50	11,86
		Demo	27,58	20,41	19,19

2.2.2.8. Farm 08.01 Olive – Dinerakis k. - Rainfed

Recording of soil moisture



No tubes installed in the **control part** due to the rocky soil

The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Dinerakis K	Olive	3.30	1.86

Fruit yield

FARMER	CROP	Rainfed	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Dinerakis K	Olive	0	0

Leaf nutritient

FARMER	CROP	%					
			N	P	K	Ca	Mg
Dinerakis K	Olive	Control	1,29	0,126	0,66	1,48	0,157
		Demo	1,06	0,127	0,64	1,35	0,149

Soil nutritient

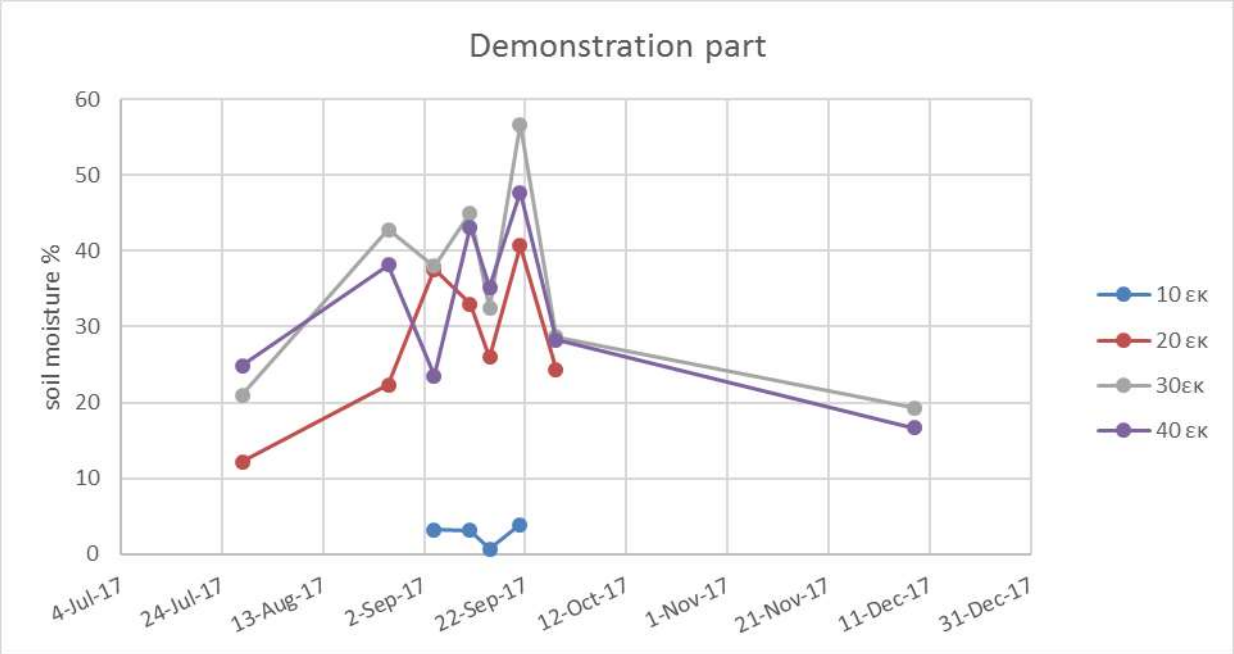
FARMER	CROP		mg/kg								
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Dinerakis K	Olive	Control	22,50	59,70	294,00	2169,00	143,00	291,50	3,67	16,21	4,71
		Demo	7,37	78,90	206,40	1459,00	126,20	414,30	4,93	13,45	5,19

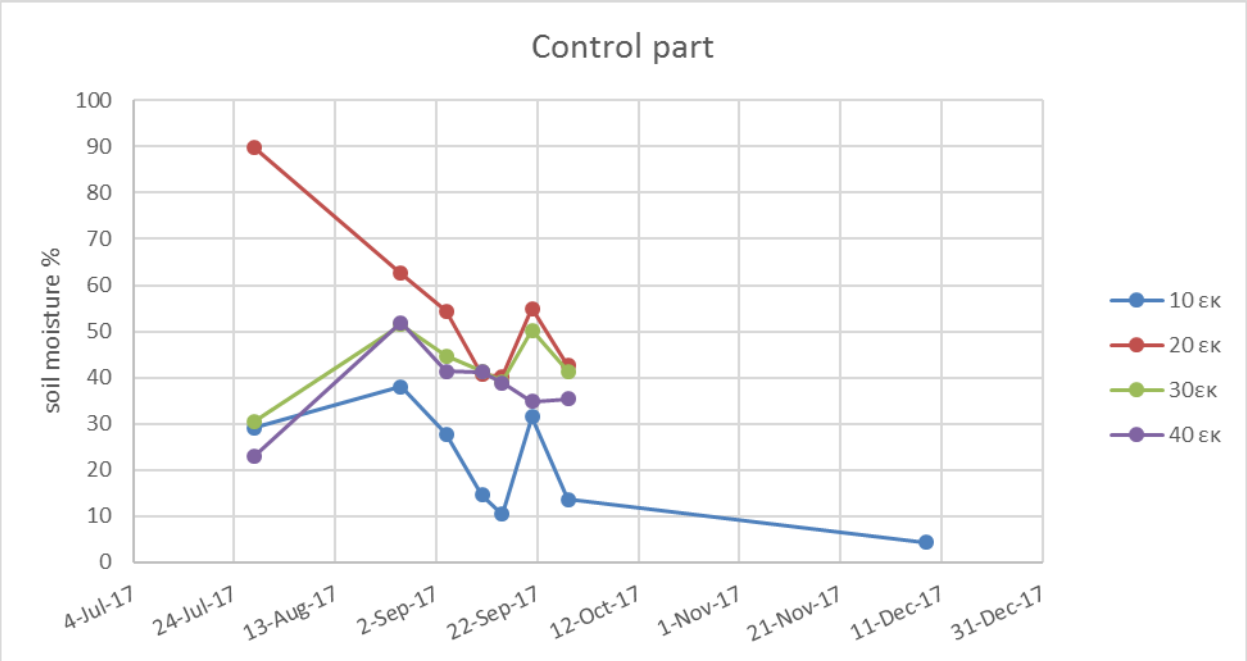
Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Dinerakis K	Olive	Control	8,52	8,54	7,26
		Demo	9,15	7,57	4,90

2.2.2.9. Farm 04.05 Olive – Antoniadis - Irrigated

Recording of soil moisture





The trend of soil moisture at different depths was assessed by probes installed in the field.

Recording of leaf area index (LAI)

FARMER	CROP	LAI [m^2 $plant^{-1}$]	
		TRADITIONAL	DEMONSTRATION
Antoniadis	Olive	1.75	3.79

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m^3 ha^{-1}]	IR = annual irrigation records [m^3 ha^{-1}]
Antoniadis	Olive	937.68	1242.43

Fruit yield

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha^{-1}]	Y = yield [kg ha^{-1}]
Antoniadis	Olive	0	0

Leaf nutritient

FARMER	CROP	%					
			N	P	K	Ca	Mg
Antoniadis	Olive	Control	1,39	0,122	0,73	1,42	0,289
		Demo	1,36	0,121	0,85	1,44	0,303

Soil nutritient

FARMER	CROP	mg/kg									
			N	P	K	Ca	Mg	Fe	Zn	Mn	Cu
Antoniadis	Olive	Control	15,30	117,70	541,20	2485,00	974,70	2,12	1,61	7,63	0,54
		Demo	19,27	53,40	525,80	2288,00	928,40	1,36	0,84	5,85	0,62

Soil nitrate content

FARMER	CROP				
			10-15 cm	20-25 cm	30-35cm
Antoniadis	Olive	Control	11,68	5,76	4,68
		Demo	6,06	5,03	3,59

Meteorological data sets

Row Labels	Sum of RAIN	Average of SOLAR RADIATION	Average of TEMPERATURE
May	27.14	278.89	20.81
Jun	5.31	332.79	25.79
Jul	2.29	327.43	27.03
Aug	0	290.42	26.63
Sep	11.42	226.73	23.69
Oct	2.76	296.19	20.95
Nov	25.51	106.88	16.34
Dec	140.5	79.16	12.96
Grand Total	214.93	239.03	21.83

Figure 50. Meteorlogical station in Milatos _Mermvello area

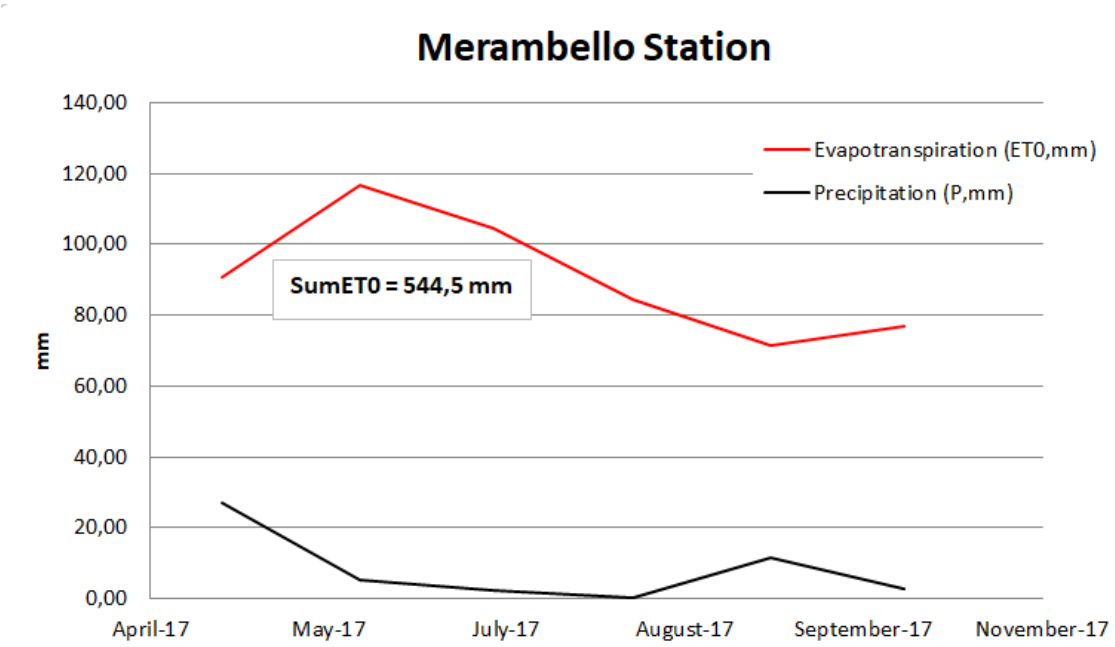


Figure 51. Precipitation and ET0 reported for the irrigation period 2017

3. Metapontino pilot area

3.1. AGRI Basin

The Italian pilot area (Agri Basin) has been selected by the scientific team of UNIBAS.

Figure 52. Map of the pilot sites in the pilot sub-basin of Agri.

Table 6. List of the pilot sites.

N°	Crop	Cultivar	Farmer	Note
1	Apricot	ORANGE RUBIS	Tristano A.	
2	Apricot	MOGADOR	Valicenti G.	
3	Citrus	Orange, NEW ALL	Faillace	
4	Citrus	Clementine	Carrino S.	
5	Peach	Sagittaria	De Filippis V.	
6	Peach	Nectarine, ZINCAL 3	SURIANO FRUTTA soc.	
7	Peach	Nectarine, ZINCAL 8	SURIANO FRUTTA soc.	
8	Olive	Ogliarola	Bonfiglio D.	Organic management
9	Olive	Coratina	Tuzio A. C.	
10	Olive	Ogliarola	Fortunato L.	Organic management

3.1.1. Overview of 1st year of application in Agri-Basin

General information about the pilot area, crops, farms per crop included.
The 10 pilot farms in Agri-basin were selected representing the most typical crops and management practices of the area:

Slot 1: Irrigated / Conventional / Apricot (parcel 29)
Slot 2: Irrigated / Conventional / Apricot/ (parcel 79)
Slot 3: Irrigated / Conventional/ Citrus/ (parcel 62)
Slot 4: Irrigated / Conventional/ Citrus/ (parcel 44)
Slot 5: Irrigated / Conventional / Peach / (parcel 110)
Slot 6: Irrigated / Conventional/Peach (parcel 84)
Slot 7: Irrigated / Conventional/ Peach (parcel 85)
Slot 8: Irrigated / Organic / Olive orchard (parcel 107)
Slot 9: Irrigated / Conventional / Olive orchard/ (parcel 101)
Slot 10: Rainfed / Organic / Olive orchard (parcel 97)

General comments about problems faced on year 1 and the causing factors.
In August 2017, scheduled protocols of irrigation were not applied because the water provision by the competent authority was limited due water scarcity reasons. No negative effects had been noticed in plants of pilot sites. However, irrigation was not applied according to the optimized water balance protocol, hence few differences between control and demonstration parts occurred.
A delay in the installation of soil monitoring devices in the Italian pilot parcels due to both administrative procedures and adverse weather conditions not allowed the establishment of the equipment in the fields on time. This delay has no effect on the project because all sensors were installed before the irrigation period.
During the first implementation year the instruments were installed and calibrated during the already started growing season (March-April 2017) and also GAPs started on March 2017, in which mainly peach and apricot crops, in particular early varieties, were in an advanced growing season (harvest occurred between May and June 2017). For this reason, values of yield (t ha^{-1}) were the same for most of the pilots because of the application of GAPs did not affect the production for demo compared to control plots. In addition, hydrometers were installed between April and June 2017, when the irrigation season was already started. For this reason, irrigation volumes recorded in the AWMS forms are different from the volumes used in the calculation of performance indicators. In this case, the irrigation volumes were estimated according to historical meteorological data.
Finally, a need for replacement of pilot one parcel was arose during the previous period due to the presence of sharka disease in the parcel, one apricot pilot site was replaced with another healthier site (same species, cultivar and owner of the previous one). The replaced apricot orchard was incorporated in the regular schedule of GAPs implementation and sampling from December 2017. Despite these replacements of the parcels the impacts on the project scheduling are expected to be minimal since it had taken place in the 1st implementation year and two more years is remaining that is sufficient enough in order to obtain the results from GAPS implementation.

3.1.1.1. Farm 5.1 - Apricot - ORANGE RUBIS – Tristano

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 – 1 application	
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 – 1 application	
Thinning	April 2017 – 1 application	
Fertilizing	Local application: 1 application Fertigation: 2 application	Details on relevant table
Irrigation	Number: 54 Total amount: 3749,36 $m^3 ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
17/04/2017	107,12	
20/04/2017	107,12	
24/04/2017	107,12	
27/04/2017	107,12	
01/05/2017	107,12	
04/05/2017	107,12	
08/05/2017	107,12	
11/05/2017	107,12	
15/05/2017	107,12	
18/05/2017	107,12	
22/05/2017	107,12	
25/05/2017	107,12	
29/05/2017	107,12	
01/06/2017	107,12	
05/06/2017	107,12	
08/06/2017	107,12	
12/06/2017	107,12	
15/06/2017	107,12	
19/06/2017	107,12	
22/06/2017	107,12	
26/06/2017	107,12	
29/06/2017	107,12	
03/07/2017	107,12	
06/07/2017	107,12	
10/07/2017	107,12	
13/07/2017	107,12	
17/07/2017	107,12	
20/07/2017	107,12	
24/07/2017	107,12	
27/07/2017	107,12	
31/07/2017	107,12	
03/08/2017	107,12	
07/08/2017	107,12	
10/08/2017	107,12	
14/08/2017	107,12	
17/08/2017	107,12	
21/08/2017	107,12	
24/08/2017	107,12	
28/08/2017	107,12	
31/08/2017	107,12	
04/09/2017	107,12	

Date	Amount (m^3 ha^{-1})	Remarks
07/09/2017	107,12	
11/09/2017	107,12	
14/09/2017	107,12	
18/09/2017	107,12	
21/09/2017	107,12	
25/09/2017	107,12	
28/09/2017	107,12	
02/10/2017	107,12	
05/10/2017	107,12	
09/10/2017	107,12	
12/10/2017	107,12	
16/10/2017	107,12	
19/10/2017	107,12	
TOTAL	**3749,36**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
03.03.17	Granulate	MINERAL FERTILIZER	83,11	60,48	155,24	0,00	0,00	0,00	0,00	LOCAL
03.04.17	Granulate	CALCIUM NITRATE	13,42	0,00	0,00	0,00	0,00	0,00	16,40	FERTIGATION
23.04.17	Granulate	POTASSIUM NITRATE	11,25	0,00	33,06	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**107,79**	**60,48**	**188,30**	**0,00**	**0,00**	**0,00**	**16,40**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 – 1 application	
Mechanical		Not applied

Cultivation		
Mechanical weed control	October 2017 – 1 application	
Thinning	April 2017 – 1 application	
Fertilizing	Fertigation: 2 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 184 Total amount: 4717,52 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount ($m^3\ ha^{-1}$)	Remarks
21/04/2017	17,92	
22/04/2017	17,92	
23/04/2017	17,92	
24/04/2017	17,92	
25/04/2017	17,92	
26/04/2017	17,92	
27/04/2017	17,92	
28/04/2017	17,92	
29/04/2017	17,92	
30/04/2017	17,92	

Date	Amount (m^3 ha^{-1})	Remarks
01/05/2017	17,92	
02/05/2017	17,92	
03/05/2017	17,92	
04/05/2017	17,92	
05/05/2017	17,92	
06/05/2017	17,92	
07/05/2017	17,92	
08/05/2017	17,92	
09/05/2017	17,92	
10/05/2017	17,92	
11/05/2017	17,92	
12/05/2017	17,92	
13/05/2017	17,92	
14/05/2017	17,92	
15/05/2017	17,92	
16/05/2017	17,92	
17/05/2017	17,92	
18/05/2017	17,92	
19/05/2017	17,92	
20/05/2017	17,92	
21/05/2017	17,92	
22/05/2017	17,92	
23/05/2017	17,92	
24/05/2017	17,92	
25/05/2017	17,92	
26/05/2017	17,92	
27/05/2017	17,92	
28/05/2017	17,92	
29/05/2017	17,92	
30/05/2017	17,92	
31/05/2017	17,92	
01/06/2017	17,92	
02/06/2017	17,92	
03/06/2017	17,92	
04/06/2017	17,92	
05/06/2017	17,92	
06/06/2017	17,92	
07/06/2017	17,92	
08/06/2017	17,92	
09/06/2017	17,92	
10/06/2017	17,92	
11/06/2017	17,92	
12/06/2017	17,92	

Date	Amount (m^3 ha^{-1})	Remarks
13/06/2017	17,92	
14/06/2017	17,92	
15/06/2017	17,92	
16/06/2017	17,92	
17/06/2017	17,92	
18/06/2017	17,92	
19/06/2017	17,92	
20/06/2017	17,92	
21/06/2017	17,92	
22/06/2017	17,92	
23/06/2017	17,92	
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25/06/2017	17,92	
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27/06/2017	17,92	
28/06/2017	17,92	
29/06/2017	17,92	
30/06/2017	17,92	
01/07/2017	17,92	
02/07/2017	17,92	
03/07/2017	17,92	
04/07/2017	17,92	
05/07/2017	17,92	
06/07/2017	17,92	
07/07/2017	17,92	
08/07/2017	17,92	
09/07/2017	17,92	
10/07/2017	37,38	
11/07/2017	37,38	
12/07/2017	37,38	
13/07/2017	37,38	
14/07/2017	37,38	
15/07/2017	37,38	
16/07/2017	37,38	
17/07/2017	37,38	
18/07/2017	37,38	
19/07/2017	37,38	
20/07/2017	37,38	
21/07/2017	37,38	
22/07/2017	37,38	
23/07/2017	37,38	
24/07/2017	37,38	
25/07/2017	37,38	

Date	Amount (m^3 ha^{-1})	Remarks
26/07/2017	37,38	
27/07/2017	37,38	
28/07/2017	37,38	
29/07/2017	37,38	
30/07/2017	37,38	
31/07/2017	37,38	
01/08/2017	37,38	
02/08/2017	37,38	
03/08/2017	37,38	
04/08/2017	37,38	
05/08/2017	37,38	
06/08/2017	37,38	
07/08/2017	37,38	
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10/08/2017	37,38	
11/08/2017	37,38	
12/08/2017	37,38	
13/08/2017	37,38	
14/08/2017	37,38	
15/08/2017	37,38	
16/08/2017	37,38	
17/08/2017	37,38	
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21/08/2017	37,38	
22/08/2017	37,38	
23/08/2017	37,38	
24/08/2017	37,38	
25/08/2017	37,38	
26/08/2017	37,38	
27/08/2017	37,38	
28/08/2017	37,38	
29/08/2017	37,38	
30/08/2017	37,38	
31/08/2017	37,38	
01/09/2017	37,38	
02/09/2017	37,38	
03/09/2017	37,38	
04/09/2017	37,38	
05/09/2017	37,38	
06/09/2017	37,38	

Date	Amount (m^3 ha^{-1})	Remarks
07/09/2017	37,38	
08/09/2017	37,38	
09/09/2017	37,38	
10/09/2017	37,38	
11/09/2017	37,38	
12/09/2017	37,38	
13/09/2017	37,38	
14/09/2017	37,38	
15/09/2017	37,38	
16/09/2017	37,38	
17/09/2017	37,38	
18/09/2017	37,38	
19/09/2017	37,38	
20/09/2017	37,38	
21/09/2017	17,92	
22/09/2017	17,92	
23/09/2017	17,92	
24/09/2017	17,92	
25/09/2017	17,92	
26/09/2017	17,92	
27/09/2017	17,92	
28/09/2017	17,92	
29/09/2017	17,92	
30/09/2017	17,92	
01/10/2017	17,92	
02/10/2017	17,92	
03/10/2017	17,92	
04/10/2017	17,92	
05/10/2017	17,92	
06/10/2017	17,92	
07/10/2017	17,92	
08/10/2017	17,92	
09/10/2017	17,92	
10/10/2017	17,92	
11/10/2017	17,92	
12/10/2017	17,92	
13/10/2017	17,92	
14/10/2017	17,92	
15/10/2017	17,92	
16/10/2017	17,92	
17/10/2017	17,92	
18/10/2017	17,92	
19/10/2017	17,92	

Date	Amount (m^3 ha^{-1})	Remarks
20/10/2017	17,92	
21/10/2017	17,92	
TOTAL	**4717,52**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
03.04.17	granulare	CALCIUM NITRATE	12,81	0,00	0,00	0,00	0,00	0,00	15,65	FERTIGATION
23.04.17	granulare	POTASSIUM NITRATE	10,74	0,00	31,56	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			23,55	0,00	31,56	0,00	0,00	0,00	15,65	

Compost application.

3.1.1.2. Farm 18.3 – Apricot – MOGADOR – Valicenti

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	May 2017 – September 2017 2 applications	Winter and Summer Pruning
Mechanical Cultivation		Not applied
Mechanical weed control	June 2017 – October 2017 2 applications	
Thinning		Not applied
Fertilizing	Fertigation: 6 application	Details on relevant table
Irrigation	Number: 44 Total amount: 4593,15 $m^3 ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
24/04/17	95,161	
28/04/17	54,032	
01/05/17	54,032	
05/05/17	54,032	
08/05/17	68,347	
12/05/17	68,347	
15/05/17	68,347	
19/05/17	114,315	
22/05/17	114,315	
26/05/17	114,315	
29/05/17	114,315	
02/06/17	106,048	
05/06/17	106,048	
09/06/17	106,048	
12/06/17	106,048	
16/06/17	106,048	
19/06/17	106,048	
23/06/17	106,048	
26/06/17	106,048	
30/06/17	119,960	
03/07/17	119,960	
07/07/17	119,960	
10/07/17	119,960	
14/07/17	119,960	
17/07/17	119,960	
21/07/17	119,960	
24/07/17	119,960	
28/07/17	167,944	
31/07/17	167,944	
04/08/17	167,944	
07/08/17	167,944	
11/08/17	159,476	
14/08/17	159,476	
18/08/17	159,476	
20/08/17	91,532	
21/08/17	79,436	
25/08/17	79,436	
28/08/17	79,436	
01/09/17	72,177	
04/09/17	72,177	
08/09/17	47,984	

Date	Amount (m^3 ha^{-1})	Remarks
11/09/17	47,984	
15/09/17	72,581	
18/09/17	72,581	
TOTAL	**4593,15**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
14.03.17	Liquid	FULVIC ACIDS	0,00	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
20.03.17	Granulate	MINERAL FERTILIZER	8,06	6,60	0,00	0,00	0,00	0,00	0,00	FERTIGATION
20.03.17	Granulate	POTASSIUM NITRATE	6,55	0,00	19,25	0,00	0,00	0,00	0,00	FERTIGATION
30.03.17	Granulate	POLYFEED	8,06	1,32	12,97	0,00	0,00	0,00	0,00	FERTIGATION
30.03.17	Granulate	MAGNESIUM NITRATE	3,96	0,00	0,00	0,00	0,00	3,91	0,00	FERTIGATION
25.09.17	Granulate	AMMONIUM SULPHATE	22,68	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**49,32**	**7,92**	**32,22**	**0,00**	**0,00**	**3,91**	**0,00**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	May 2017 – September 2017 2 applications	Winter and Summer Pruning
Mechanical Cultivation		Not applied
Mechanical weed control	June 2017 – October 2017 2 applications	
Thinning		Not applied
Fertilizing	Fertigation: 4 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 161	Details on relevant table

	Total amount: 5627,71 m^3 ha^{-1}	

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
21/04/2017	32,29	
22/04/2017	32,29	
23/04/2017	32,29	
24/04/2017	32,29	
25/04/2017	14,37	
26/04/2017	14,37	
27/04/2017	14,37	
28/04/2017	14,37	
29/04/2017	14,37	
30/04/2017	14,37	
01/05/2017	14,37	
02/05/2017	14,37	
03/05/2017	14,37	
04/05/2017	14,37	

Date	Amount (m^3 ha^{-1})	Remarks
05/05/2017	14,37	
06/05/2017	23,12	
07/05/2017	23,12	
08/05/2017	23,12	
09/05/2017	23,12	
10/05/2017	23,12	
11/05/2017	23,12	
12/05/2017	23,12	
13/05/2017	23,12	
14/05/2017	23,12	
15/05/2017	23,12	
16/05/2017	23,12	
17/05/2017	33,75	
18/05/2017	33,75	
19/05/2017	33,75	
20/05/2017	33,75	
21/05/2017	33,75	
22/05/2017	33,75	
23/05/2017	33,75	
24/05/2017	33,75	
25/05/2017	33,75	
26/05/2017	33,75	
27/05/2017	33,75	
28/05/2017	33,75	
29/05/2017	33,75	
30/05/2017	35,83	
31/05/2017	35,83	
01/06/2017	35,83	
02/06/2017	35,83	
03/06/2017	35,83	
04/06/2017	35,83	
05/06/2017	35,83	
06/06/2017	35,83	
07/06/2017	35,83	
08/06/2017	35,83	
09/06/2017	35,83	
10/06/2017	35,83	
11/06/2017	35,83	
12/06/2017	35,83	
13/06/2017	35,83	
14/06/2017	35,83	
15/06/2017	35,83	
16/06/2017	35,83	

Date	Amount (m^3 ha^{-1})	Remarks
17/06/2017	35,83	
18/06/2017	35,83	
19/06/2017	35,83	
20/06/2017	35,83	
21/06/2017	35,83	
22/06/2017	35,83	
23/06/2017	35,83	
24/06/2017	35,83	
25/06/2017	35,83	
26/06/2017	35,83	
27/06/2017	35,83	
28/06/2017	35,83	
29/06/2017	30,00	
30/06/2017	30,00	
01/07/2017	30,00	
02/07/2017	30,00	
03/07/2017	30,00	
04/07/2017	30,00	
05/07/2017	30,00	
06/07/2017	30,00	
07/07/2017	30,00	
08/07/2017	30,00	
09/07/2017	30,00	
10/07/2017	30,00	
11/07/2017	30,00	
12/07/2017	30,00	
13/07/2017	30,00	
14/07/2017	30,00	
15/07/2017	30,00	
16/07/2017	30,00	
17/07/2017	30,00	
18/07/2017	30,00	
19/07/2017	30,00	
20/07/2017	30,00	
21/07/2017	30,00	
22/07/2017	30,00	
23/07/2017	30,00	
24/07/2017	30,00	
25/07/2017	30,00	
26/07/2017	30,00	
27/07/2017	48,54	
28/07/2017	48,54	
29/07/2017	48,54	

Date	Amount (m^3 ha^{-1})	Remarks
30/07/2017	48,54	
31/07/2017	48,54	
01/08/2017	48,54	
02/08/2017	48,54	
03/08/2017	48,54	
04/08/2017	48,54	
05/08/2017	48,54	
06/08/2017	48,54	
07/08/2017	48,54	
08/08/2017	48,54	
09/08/2017	48,54	
10/08/2017	48,54	
11/08/2017	113,12	
12/08/2017	113,12	
13/08/2017	113,12	
14/08/2017	113,12	
15/08/2017	113,12	
16/08/2017	113,12	
17/08/2017	113,12	
18/08/2017	113,12	
21/08/2017	11,04	
22/08/2017	43,96	
23/08/2017	43,96	
24/08/2017	43,96	
25/08/2017	43,96	
26/08/2017	43,96	
27/08/2017	43,96	
28/08/2017	43,96	
29/08/2017	43,96	
30/08/2017	40,00	
31/08/2017	40,00	
01/09/2017	40,00	
02/09/2017	40,00	
03/09/2017	40,00	
04/09/2017	40,00	
05/09/2017	40,00	
06/09/2017	40,00	
07/09/2017	11,46	
08/09/2017	11,46	
09/09/2017	11,46	
10/09/2017	11,46	
11/09/2017	11,46	
12/09/2017	11,46	

Date	Amount (m^3 ha^{-1})	Remarks
13/09/2017	23,54	
14/09/2017	23,54	
15/09/2017	23,54	
16/09/2017	23,54	
17/09/2017	23,54	
18/09/2017	23,54	
19/09/2017	23,54	
20/09/2017	23,54	
21/09/2017	23,54	
22/09/2017	3,96	
23/09/2017	3,96	
24/09/2017	3,96	
25/09/2017	3,96	
26/09/2017	3,96	
27/09/2017	3,96	
28/09/2017	41,67	
29/09/2017	41,67	
30/09/2017	28,75	
TOTAL	**5627,71**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
20.03.17	granulare	POTASIUM NITRATE	6,77	0,00	19,89	0,00	0,00	0,00	0,00	FERTIGATION
30.03.17	granulare	POLYFEED	8,33	1,36	13,40	0,00	0,00	0,00	0,00	FERTIGATION
30.03.17	granulare	MAGNESIUM NITRATE	4,09	0,00	0,00	0,00	0,00	4,04	0,00	FERTIGATION
25.09.17	granulare	AMMONIUM SULPHATE	23,44	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**42,63**	**1,36**	**33,29**	**0,00**	**0,00**	**4,04**	**0,00**	

3.1.1.3. Farm 15.2 – Citrus - NEW ALL – Faillace

Application of practices in the control plot by the farmer
The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning		Not applied
Mechanical Cultivation		Not applied
Mechanical weed control	April 2017 – June 2017 – September 2017 3 application	
Thinning		Not applied
Fertilizing	Local application: 1 application Fertigation: 4 application	Details on relevant table
Irrigation	Number: 39 Total amount: 4002,88 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount ($m^3\ ha^{-1}$)	Remarks
01/06/17	34,08	
04/06/17	34,08	

Date	Amount (m^3 ha^{-1})	Remarks
08/06/17	34,08	
11/06/17	34,08	
15/06/17	34,08	
18/06/17	34,08	
22/06/17	34,08	
25/06/17	34,08	
26/06/17	34,08	
29/06/17	179,52	
03/07/17	179,52	
06/07/17	179,52	
10/07/17	179,52	
13/07/17	179,52	
17/07/17	179,52	
20/07/17	179,52	
24/07/17	179,52	
27/07/17	65,76	
31/07/17	65,76	
03/08/17	65,76	
07/08/17	65,76	
10/08/17	65,76	
14/08/17	65,76	
17/08/17	65,76	
20/08/17	1,44	
04/09/17	0,32	
07/09/17	32,48	
11/09/17	32,48	
14/09/17	1,44	
18/09/17	1,44	
21/09/17	1,44	
28/09/17	184,00	
02/10/17	184,00	
05/10/17	48,00	
09/10/17	48,00	
12/10/17	304,00	
16/10/17	304,00	
19/10/17	328,00	
23/10/17	328,64	
TOTAL	**4002,88**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
21.03.17	Granulate	MINERAL FERTILIZER	100,42	14,61	111,11	0,00	0,00	0,00	0,00	LOCAL
26.04.17	Granulate	MINERAL FERTILIZER	8,03	6,57	0,00	0,00	0,00	0,00	0,00	FERTIGATION
26.04.17	Granulate	POTASSIUM NITRATE	6,53	0,00	19,17	0,00	0,00	0,00	0,00	FERTIGATION
16.09.2017	Granulate	POTASSIUM NITRATE	21,76	0,00	63,89	0,00	0,00	0,00	0,00	FERTIGATION
03.07.17	Granulate	AMMONIUM SULPHATE	17,57	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**154,31**	**21,18**	**194,16**	**0,00**	**0,00**	**0,00**	**0,00**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning		Not applied
Mechanical Cultivation		Not applied
Mechanical weed control	April 2017 – June 2017 – September 2017 3 application	
Thinning		Not applied
Fertilizing	Fertigation: 4 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 135 Total amount: 3993,07 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
29/05/2017	2,15	
30/05/2017	2,15	
31/05/2017	2,15	
01/06/2017	2,15	
02/06/2017	2,15	
03/06/2017	2,15	
04/06/2017	2,15	
05/06/2017	2,15	
06/06/2017	2,15	
07/06/2017	2,15	
08/06/2017	2,15	
09/06/2017	2,15	
10/06/2017	2,15	
11/06/2017	2,15	
12/06/2017	2,15	

Date	Amount (m^3 ha^{-1})	Remarks
13/06/2017	2,15	
14/06/2017	2,15	
15/06/2017	2,15	
16/06/2017	2,15	
17/06/2017	2,15	
18/06/2017	2,15	
19/06/2017	2,15	
20/06/2017	2,15	
21/06/2017	2,15	
22/06/2017	2,15	
23/06/2017	2,15	
24/06/2017	2,15	
25/06/2017	2,15	
26/06/2017	2,15	
27/06/2017	2,15	
28/06/2017	2,15	
29/06/2017	50,15	
30/06/2017	50,15	
01/07/2017	50,15	
02/07/2017	50,15	
03/07/2017	50,15	
04/07/2017	50,15	
05/07/2017	50,15	
06/07/2017	50,15	
07/07/2017	50,15	
08/07/2017	50,15	
09/07/2017	50,15	
10/07/2017	50,15	
11/07/2017	50,15	
12/07/2017	50,15	
13/07/2017	50,15	
14/07/2017	50,15	
15/07/2017	50,15	
16/07/2017	50,15	
17/07/2017	50,15	
18/07/2017	50,15	
19/07/2017	50,15	
20/07/2017	50,15	
21/07/2017	50,15	
22/07/2017	50,15	
23/07/2017	50,15	
24/07/2017	50,15	
25/07/2017	50,15	

Date	Amount (m^3 ha^{-1})	Remarks
26/07/2017	50,15	
27/07/2017	16,00	
28/07/2017	16,00	
29/07/2017	16,00	
30/07/2017	16,00	
31/07/2017	16,00	
01/08/2017	16,00	
02/08/2017	16,00	
03/08/2017	16,00	
04/08/2017	16,00	
05/08/2017	16,00	
06/08/2017	16,00	
07/08/2017	16,00	
08/08/2017	16,00	
09/08/2017	16,00	
10/08/2017	16,00	
11/08/2017	16,00	
12/08/2017	16,00	
13/08/2017	16,00	
14/08/2017	16,00	
15/08/2017	16,00	
16/08/2017	16,00	
17/08/2017	16,00	
18/08/2017	16,00	
06/09/2017	0,31	
07/09/2017	0,31	
08/09/2017	0,31	
09/09/2017	0,31	
10/09/2017	0,31	
11/09/2017	0,31	
12/09/2017	0,31	
13/09/2017	0,15	
14/09/2017	0,15	
15/09/2017	0,15	
16/09/2017	0,15	
17/09/2017	0,15	
18/09/2017	0,15	
19/09/2017	0,15	
20/09/2017	0,15	
21/09/2017	0,15	
22/09/2017	7,85	
23/09/2017	7,85	
24/09/2017	7,85	

Date	Amount (m^3 ha^{-1})	Remarks
25/09/2017	7,85	
26/09/2017	7,85	
27/09/2017	7,85	
28/09/2017	41,69	
29/09/2017	41,69	
30/09/2017	41,69	
01/10/2017	41,69	
02/10/2017	41,69	
03/10/2017	41,69	
04/10/2017	41,69	
05/10/2017	98,92	
06/10/2017	98,92	
07/10/2017	98,92	
08/10/2017	98,92	
09/10/2017	98,92	
10/10/2017	98,92	
11/10/2017	98,92	
12/10/2017	102,62	
13/10/2017	102,62	
14/10/2017	102,62	
15/10/2017	102,62	
16/10/2017	102,62	
17/10/2017	102,62	
18/10/2017	47,38	
19/10/2017	47,38	
20/10/2017	47,38	
21/10/2017	47,38	
22/10/2017	47,38	
23/10/2017	47,38	
25/10/2017	47,38	
26/10/2017	47,38	
27/10/2017	47,38	
29/10/2017	47,38	
30/10/2017	29,54	
TOTAL	**3993,07**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast

26.04.17	granulare	NITRATE FERTILIZER	7,62	6,24	0,00	0,00	0,00	0,00	0,00	FERTIGATION
26.04.17	granulare	POTASSIUM NITRATE	6,19	0,00	18,18	0,00	0,00	0,00	0,00	FERTIGATION
16.09.2017	granulare	POTASSIUM NITRATE	20,63	0,00	60,61	0,00	0,00	0,00	0,00	FERTIGATION
03.07.17	granulare	AMMANIUM SULPHATE	16,67	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**51,11**	**6,24**	**78,80**	**0,00**	**0,00**	**0,00**	**0,00**	

3.1.1.4. Farm 10.1 – Citrus – CLEMENTINE - Carrino

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	September 2017	
Mechanical Cultivation		Not applied
Mechanical weed control	April 2017 – June 2017 – September 2017 3 application	
Thinning		Not applied
Fertilizing	Local application: 1 application Fertigation: 3 application	Details on relevant table
Irrigation	Number: 35 Total amount: 4533,15 $m^3 ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
30/05/2017	149,99	
02/06/2017	149,99	
06/06/2017	149,99	
09/06/2017	149,99	
13/06/2017	116,66	
16/06/2017	116,66	
20/06/2017	116,66	
23/06/2017	116,66	
27/06/2017	116,66	
30/06/2017	199,99	
04/07/2017	199,99	
07/07/2017	199,99	
11/07/2017	199,99	
14/07/2017	199,99	
18/07/2017	199,99	
21/07/2017	199,99	
25/07/2017	199,99	
28/07/2017	100,00	
01/08/2017	100,00	
04/08/2017	100,00	
08/08/2017	100,00	
11/08/2017	100,00	
15/08/2017	100,00	
18/08/2017	100,00	
22/08/2017	83,33	
25/08/2017	83,33	
29/08/2017	149,99	
01/09/2017	149,99	
05/09/2017	149,99	
08/09/2017	100,00	
12/09/2017	100,00	
15/09/2017	16,67	
19/09/2017	16,67	
22/09/2017	100,00	
26/09/2017	100,00	
TOTAL	**4533,15**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
12.03.17	Granulate	MINERAL FERTILIZER	44,94	19,62	52,85	0,00	0,00	0,00	0,00	LOCAL
20.05.17	Granulate	UREA PHOSPHATE	6,74	0,00	13,68	0,00	0,00	0,00	0,00	FERTIGATION
10.07.17	Granulate	CALCIUM NITRATE	11,61	0,00	0,00	0,00	0,00	0,00	14,19	FERTIGATION
20.09.17	Granulate	POTASSIUM NITRATE	4,87	0,00	14,30	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**68,16**	**19,62**	**80,83**	**0,00**	**0,00**	**0,00**	**14,19**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	September 2017 – 1 application	
Mechanical Cultivation		Not applied
Mechanical weed control	April 2017 – June 2017 – September 2017 3 application	
Thinning		Not applied
Fertilizing	Fertigation: 3 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 141 Total amount: 6009,41 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
29/05/2017	31,06	
30/05/2017	31,06	
31/05/2017	31,06	
01/06/2017	31,06	
02/06/2017	31,06	
03/06/2017	31,06	
04/06/2017	31,06	
05/06/2017	31,06	
06/06/2017	31,06	
07/06/2017	31,06	
08/06/2017	31,06	
09/06/2017	31,06	
10/06/2017	31,06	
11/06/2017	31,06	

Date	Amount (m^3 ha^{-1})	Remarks
13/06/2017	39,06	
14/06/2017	39,06	
15/06/2017	39,06	
16/06/2017	39,06	
17/06/2017	39,06	
18/06/2017	39,06	
19/06/2017	39,06	
20/06/2017	39,06	
21/06/2017	39,06	
22/06/2017	39,06	
23/06/2017	39,06	
24/06/2017	39,06	
25/06/2017	39,06	
26/06/2017	39,06	
27/06/2017	39,06	
28/06/2017	39,06	
29/06/2017	45,88	
30/06/2017	45,88	
01/07/2017	45,88	
02/07/2017	45,88	
03/07/2017	45,88	
04/07/2017	45,88	
05/07/2017	45,88	
06/07/2017	45,88	
07/07/2017	45,88	
08/07/2017	45,88	
09/07/2017	45,88	
10/07/2017	45,88	
11/07/2017	45,88	
12/07/2017	45,88	
13/07/2017	45,88	
14/07/2017	45,88	
15/07/2017	45,88	
16/07/2017	45,88	
17/07/2017	45,88	
18/07/2017	45,88	
19/07/2017	41,88	
20/07/2017	41,88	
21/07/2017	41,88	
22/07/2017	41,88	
23/07/2017	41,88	
24/07/2017	41,88	
25/07/2017	41,88	

Date	Amount (m^3 ha^{-1})	Remarks
26/07/2017	41,88	
27/07/2017	40,71	
28/07/2017	40,71	
29/07/2017	40,71	
30/07/2017	40,71	
31/07/2017	40,71	
01/08/2017	40,71	
02/08/2017	40,71	
03/08/2017	40,71	
04/08/2017	40,71	
05/08/2017	40,71	
06/08/2017	40,71	
07/08/2017	40,71	
08/08/2017	40,71	
09/08/2017	40,71	
10/08/2017	40,71	
11/08/2017	40,71	
12/08/2017	40,71	
13/08/2017	40,71	
14/08/2017	40,71	
15/08/2017	40,71	
16/08/2017	40,71	
17/08/2017	40,71	
18/08/2017	40,71	
19/08/2017	57,65	
20/08/2017	57,65	
21/08/2017	57,65	
22/08/2017	57,65	
23/08/2017	57,65	
24/08/2017	57,65	
25/08/2017	57,65	
26/08/2017	115,53	
27/08/2017	115,53	
28/08/2017	115,53	
29/08/2017	115,53	
30/08/2017	64,00	
31/08/2017	64,00	
01/09/2017	64,00	
02/09/2017	64,00	
03/09/2017	64,00	
04/09/2017	64,00	
05/09/2017	64,00	
06/09/2017	64,00	

Date	Amount (m^3 ha^{-1})	Remarks
07/09/2017	103,06	
08/09/2017	103,06	
09/09/2017	103,06	
10/09/2017	103,06	
11/09/2017	103,06	
12/09/2017	103,06	
13/09/2017	12,71	
14/09/2017	12,71	
15/09/2017	12,71	
16/09/2017	12,71	
17/09/2017	12,71	
18/09/2017	12,71	
19/09/2017	12,71	
20/09/2017	12,71	
21/09/2017	12,71	
22/09/2017	73,41	
23/09/2017	73,41	
24/09/2017	73,41	
25/09/2017	73,41	
26/09/2017	73,41	
27/09/2017	73,41	
05/10/2017	17,88	
06/10/2017	17,88	
07/10/2017	17,88	
08/10/2017	17,88	
09/10/2017	17,88	
10/10/2017	17,88	
11/10/2017	17,88	
17/10/2017	6,82	
18/10/2017	6,82	
19/10/2017	6,82	
20/10/2017	6,82	
21/10/2017	6,82	
22/10/2017	6,82	
23/10/2017	6,82	
24/10/2017	6,82	
25/10/2017	6,82	
26/10/2017	6,82	
27/10/2017	6,82	
28/10/2017	6,82	
29/10/2017	2,82	
TOTAL	**6009,41**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
20.05.17	granulare	UREA PHOSPHATE	13,23	0,00	26,86	0,00	0,00	0,00	0,00	FERTIGATION
10.07.17	granulare	CALCIUM NITRATE	22,79	0,00	0,00	0,00	0,00	0,00	27,85	FERTIGATION
20.09.17	granulare	POTASSIUM NITRATE	9,56	0,00	28,08	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**45,59**	**0,00**	**54,93**	**0,00**	**0,00**	**0,00**	**27,85**	

Compost application

3.1.1.5. Farm 33 – Peach – SAGITTARIA - De Filippis

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	May 2017 – July 2017 2 applications	Summer pruning
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 1 application	
Thinning	April 2017 1 application	
Fertilizing	Local application: 1 application Fertigation: 2 application	Details on relevant table
Irrigation	Number: 44 Total amount: 5858,33 $m^3 ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
23/05/2017	74,33	
26/05/2017	74,33	
30/05/2017	115,67	
02/06/2017	222,67	
06/06/2017	222,67	
09/06/2017	163,67	
13/06/2017	163,67	
16/06/2017	163,67	
20/06/2017	163,67	
23/06/2017	163,67	
27/06/2017	163,67	
30/06/2017	163,67	
04/07/2017	163,67	
07/07/2017	163,67	
11/07/2017	163,67	
14/07/2017	163,67	
18/07/2017	163,67	
21/07/2017	187,00	
25/07/2017	187,00	
28/07/2017	114,33	
01/08/2017	114,33	
04/08/2017	114,33	
08/08/2017	114,33	
11/08/2017	108,33	
15/08/2017	108,33	
18/08/2017	108,33	
20/08/2017	148,00	
22/08/2017	90,33	
25/08/2017	90,33	
29/08/2017	165,67	
01/09/2017	165,67	
05/09/2017	165,67	
08/09/2017	88,00	
12/09/2017	88,00	
15/09/2017	131,00	
19/09/2017	131,00	
22/09/2017	131,00	
26/09/2017	88,33	
29/09/2017	154,67	
03/10/2017	154,67	
06/10/2017	88,33	

Date	Amount (m^3 ha^{-1})	Remarks
10/10/2017	88,33	
13/10/2017	29,67	
17/10/2017	29,67	
TOTAL	**5858,33**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
04.03.17	Granulate	MINERAL FERTILIZER	91,42	66,52	170,75	0,00	0,00	0,00	0,00	LOCAL
04.04.17	Granulate	CALCIUM NITRATE	14,76	0,00	0,00	0,00	0,00	0,00	18,04	FERTIGATION
24.04.17	Granulate	POTASSIUM NITRATE	12,38	0,00	36,36	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**118,56**	**66,52**	**207,11**	**0,00**	**0,00**	**0,00**	**18,04**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 – July 2017 2 applications	Summer pruning
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 1 application	
Thinning	April 2017 1 application	
Fertilizing	Fertigation: 2 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 169 Total amount: 4957,00 m^3 ha^{-1}	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
21/04/2017	35,00	
22/04/2017	35,00	
23/04/2017	35,00	
24/04/2017	35,00	
25/04/2017	35,00	
26/04/2017	35,00	
27/04/2017	35,00	
28/04/2017	35,00	
29/04/2017	35,00	
30/04/2017	35,00	
01/05/2017	35,00	
02/05/2017	35,00	
03/05/2017	35,00	

Date	Amount (m^3 ha^{-1})	Remarks
04/05/2017	35,00	
05/05/2017	35,00	
06/05/2017	35,00	
07/05/2017	35,00	
08/05/2017	35,00	
09/05/2017	35,00	
10/05/2017	35,00	
11/05/2017	35,00	
12/05/2017	35,00	
13/05/2017	35,00	
14/05/2017	35,00	
15/05/2017	35,00	
16/05/2017	35,00	
17/05/2017	35,00	
18/05/2017	35,00	
19/05/2017	35,00	
20/05/2017	35,00	
21/05/2017	35,00	
22/05/2017	35,00	
23/05/2017	35,00	
24/05/2017	35,00	
25/05/2017	35,00	
26/05/2017	35,00	
27/05/2017	35,00	
28/05/2017	35,00	
29/05/2017	35,00	
30/05/2017	14,67	
31/05/2017	14,67	
01/06/2017	14,67	
02/06/2017	14,67	
03/06/2017	14,67	
04/06/2017	14,67	
05/06/2017	14,67	
06/06/2017	14,67	
07/06/2017	14,67	
08/06/2017	14,67	
09/06/2017	14,67	
10/06/2017	14,67	
11/06/2017	14,67	
12/06/2017	14,67	
13/06/2017	14,67	
14/06/2017	14,67	
15/06/2017	14,67	

Date	Amount (m^3 ha^{-1})	Remarks
16/06/2017	14,67	
17/06/2017	14,67	
18/06/2017	14,67	
19/06/2017	14,67	
20/06/2017	14,67	
21/06/2017	14,67	
22/06/2017	14,67	
23/06/2017	14,67	
24/06/2017	14,67	
25/06/2017	14,67	
26/06/2017	14,67	
27/06/2017	14,67	
28/06/2017	14,67	
29/06/2017	26,67	
30/06/2017	26,67	
01/07/2017	26,67	
02/07/2017	26,67	
03/07/2017	26,67	
04/07/2017	26,67	
05/07/2017	16,67	
06/07/2017	16,67	
07/07/2017	16,67	
08/07/2017	16,67	
09/07/2017	16,67	
10/07/2017	16,67	
11/07/2017	16,67	
12/07/2017	16,67	
13/07/2017	16,67	
14/07/2017	16,67	
15/07/2017	102,67	
16/07/2017	102,67	
17/07/2017	102,67	
18/07/2017	102,67	
19/07/2017	33,33	
20/07/2017	33,33	
21/07/2017	33,33	
22/07/2017	33,33	
23/07/2017	33,33	
24/07/2017	33,33	
25/07/2017	33,33	
26/07/2017	29,67	
27/07/2017	29,67	
28/07/2017	29,67	

Date	Amount (m^3 ha^{-1})	Remarks
29/07/2017	29,67	
30/07/2017	29,67	
31/07/2017	29,67	
01/08/2017	29,67	
02/08/2017	29,67	
03/08/2017	29,67	
04/08/2017	29,67	
05/08/2017	29,67	
06/08/2017	29,67	
07/08/2017	29,67	
08/08/2017	29,67	
09/08/2017	29,67	
10/08/2017	29,67	
11/08/2017	29,67	
12/08/2017	29,67	
13/08/2017	29,67	
14/08/2017	29,67	
15/08/2017	29,67	
16/08/2017	29,67	
17/08/2017	29,67	
18/08/2017	29,67	
19/08/2017	29,67	
20/08/2017	29,67	
21/08/2017	29,67	
22/08/2017	74,33	
23/08/2017	74,33	
24/08/2017	74,33	
25/08/2017	74,33	
26/08/2017	74,33	
27/08/2017	74,33	
28/08/2017	74,33	
29/08/2017	74,33	
30/08/2017	31,33	
31/08/2017	31,33	
01/09/2017	31,33	
02/09/2017	31,33	
03/09/2017	31,33	
04/09/2017	31,33	
05/09/2017	31,33	
06/09/2017	31,33	
07/09/2017	31,33	
08/09/2017	31,33	
09/09/2017	31,33	

Date	Amount (m^3 ha^{-1})	Remarks
10/09/2017	31,33	
11/09/2017	31,33	
12/09/2017	31,33	
13/09/2017	31,33	
14/09/2017	29,33	
15/09/2017	29,33	
16/09/2017	29,33	
17/09/2017	29,33	
18/09/2017	29,33	
19/09/2017	29,33	
20/09/2017	29,33	
21/09/2017	29,33	
27/09/2017	6,33	
28/09/2017	6,33	
29/09/2017	6,33	
30/09/2017	6,33	
01/10/2017	6,33	
02/10/2017	6,33	
03/10/2017	6,33	
04/10/2017	6,33	
05/10/2017	4,33	
06/10/2017	4,33	
07/10/2017	4,33	
08/10/2017	4,33	
09/10/2017	4,33	
10/10/2017	4,33	
11/10/2017	4,33	
TOTAL	**4957,00**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
04.04.17	granulare	CALCIUM NITRATE	14,09	0,00	0,00	0,00	0,00	0,00	17,22	FERTIGATION
24.04.17	granulare	POTASSIUM NITRATE	11,82	0,00	34,72	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**25,91**	**0,00**	**34,72**	**0,00**	**0,00**	**0,00**	**17,22**	

3.1.1.6. Farm 19.1 – Peach - ZINCAL 3 - Suriano Frutta

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	May 2017 – July 2017 – October 2017 3 applications	Winter and Summer pruning
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 – October 2017 2 application	
Thinning	April 2017 1 application	
Fertilizing	Mechanical applications: 6 application	Details on relevant table
Irrigation	Number: 26 Total amount: 4164,74 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
29/06/2017	99,31	
03/07/2017	99,31	
06/07/2017	99,31	
10/07/2017	99,31	
13/07/2017	99,31	
17/07/2017	99,31	
20/07/2017	99,31	
24/07/2017	99,31	
27/07/2017	119,54	
31/07/2017	119,54	
03/08/2017	119,54	
07/08/2017	119,54	
10/08/2017	119,54	
14/08/2017	326,89	
17/08/2017	326,89	
19/08/2017	138,85	
19/08/2017	138,85	
21/08/2017	220,68	
24/08/2017	220,68	
28/08/2017	216,78	
31/08/2017	305,51	
04/09/2017	305,51	
07/09/2017	230,11	
11/09/2017	230,11	
14/09/2017	55,86	
18/09/2017	55,86	
TOTAL	**4164,74**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
06.03.17	Liquid	FULVIC ACIDS	0,00	0,00	0,00	0,00	0,00	0,00	0,00	MECHANICAL
16.03.17	Granulate	MINERAL FERTILIZER	9,96	8,16	0,00	0,00	0,00	0,00	0,00	MECHANICAL
16.03.17	Granulate	POTASSIUM NITRATE	8,10	0,00	23,78	0,00	0,00	0,00	0,00	MECHANICAL

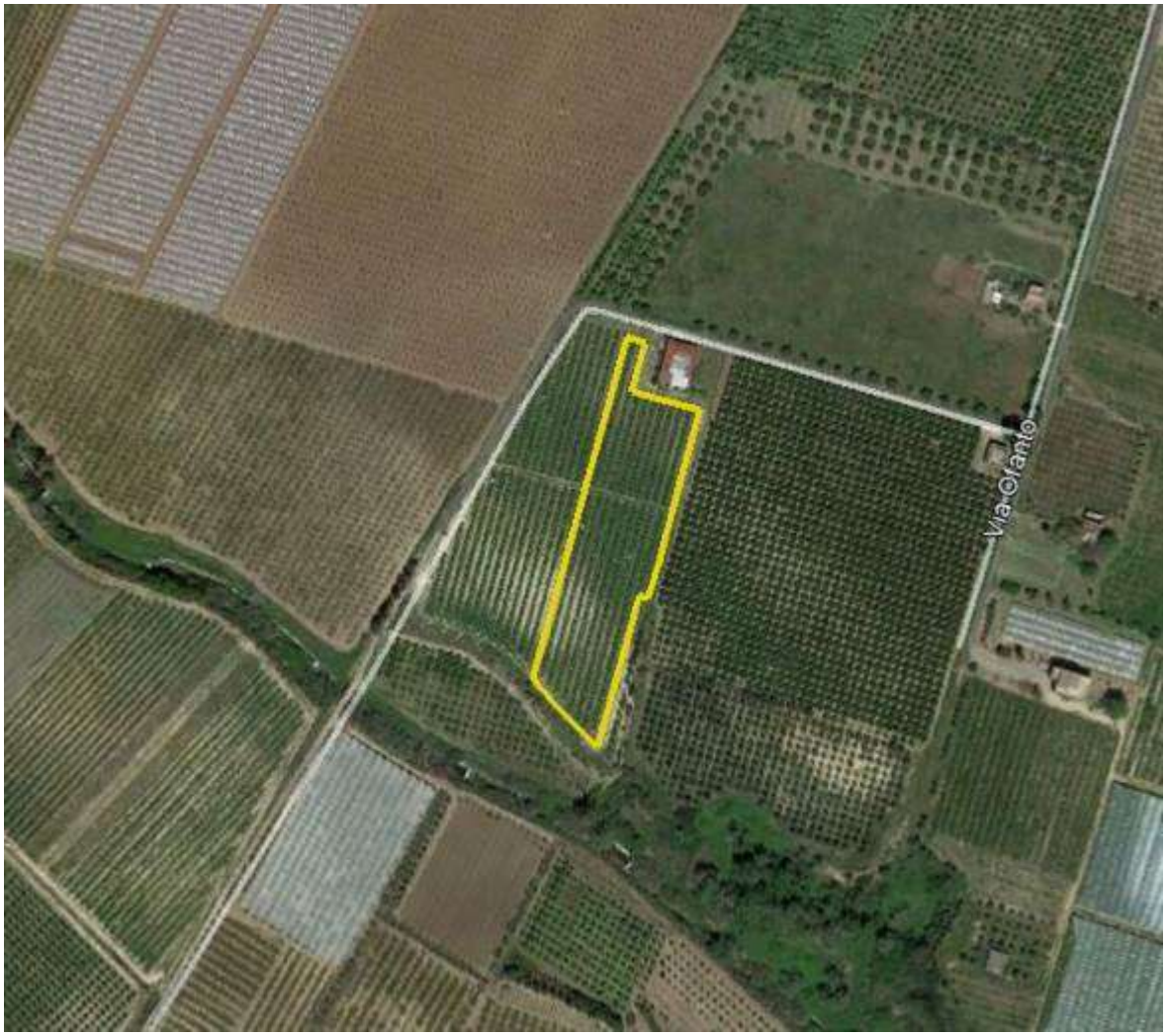
10.04.17	Granulate	POLYFEED	9,96	1,63	16,03	0,00	0,00	0,00	0,00	MECHANICAL
10.04.17	Granulate	MAGNESIUM NITRATE	5,71	0,00	0,00	0,00	0,00	5,63	0,00	MECHANICAL
20.09.17	Granulate	AMMONIUM SULPHATE	21,80	0,00	0,00	0,00	0,00	0,00	0,00	MECHANICAL
TOTAL			**55,53**	**9,79**	**39,81**	**0,00**	**0,00**	**5,63**	**0,00**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 – July 2017 - October 2017 3 applications	Winter and Summer pruning
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 – October 2017 2 application	
Thinning	April 2017 1 application	
Fertilizing	Fertigation: 4 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 81 Total amount: 2293,10 $m^3\ ha^{-1}$	Details on relevant table



Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
28/06/2017	19,54	
29/06/2017	19,54	
30/06/2017	19,54	
01/07/2017	19,54	
02/07/2017	19,54	
03/07/2017	19,54	
04/07/2017	19,54	
05/07/2017	19,54	
06/07/2017	19,54	
07/07/2017	19,54	
08/07/2017	19,54	
09/07/2017	19,54	
10/07/2017	19,54	
11/07/2017	19,54	
12/07/2017	19,54	

Date	Amount (m^3 ha^{-1})	Remarks
13/07/2017	19,54	
14/07/2017	19,54	
15/07/2017	19,54	
16/07/2017	19,54	
17/07/2017	19,54	
18/07/2017	19,54	
19/07/2017	19,54	
20/07/2017	19,54	
21/07/2017	19,54	
22/07/2017	19,54	
23/07/2017	19,54	
24/07/2017	19,54	
26/07/2017	16,78	
27/07/2017	16,78	
28/07/2017	16,78	
29/07/2017	16,78	
30/07/2017	16,78	
31/07/2017	16,78	
01/08/2017	16,78	
02/08/2017	16,78	
03/08/2017	16,78	
04/08/2017	16,78	
05/08/2017	16,78	
06/08/2017	16,78	
07/08/2017	16,78	
08/08/2017	16,78	
09/08/2017	16,78	
10/08/2017	16,78	
11/08/2017	56,09	
12/08/2017	56,09	
13/08/2017	56,09	
14/08/2017	56,09	
15/08/2017	56,09	
16/08/2017	56,09	
17/08/2017	56,09	
18/08/2017	56,09	
22/08/2017	73,56	
23/08/2017	73,56	
24/08/2017	73,56	
25/08/2017	73,56	
26/08/2017	2,07	
27/08/2017	2,07	
28/08/2017	2,07	

Date	Amount (m^3 ha^{-1})	Remarks
29/08/2017	2,07	
30/08/2017	28,97	
31/08/2017	28,97	
01/09/2017	28,97	
02/09/2017	28,97	
03/09/2017	28,97	
04/09/2017	28,97	
05/09/2017	28,97	
06/09/2017	59,77	
07/09/2017	59,77	
08/09/2017	59,77	
09/09/2017	59,77	
10/09/2017	59,77	
11/09/2017	59,77	
12/09/2017	59,77	
13/09/2017	16,78	
14/09/2017	16,78	
15/09/2017	16,78	
16/09/2017	16,78	
17/09/2017	16,78	
18/09/2017	16,78	
19/09/2017	16,78	
20/09/2017	7,13	
TOTAL	**2293,10**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
16.03.17	granulare	POTASSIUM NITRATE	9,03	0,00	26,52	0,00	0,00	0,00	0,00	FERTIGATION
10.04.17	granulare	POLYFEED	11,11	1,82	17,87	0,00	0,00	0,00	0,00	FERTIGATION
10.04.17	granulare	MAGNESIUM NITRATE	6,37	0,00	0,00	0,00	0,00	6,28	0,00	FERTIGATION
20.09.17	granulare	AMMONIUM SULPHATE	24,31	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**50,81**	**1,82**	**44,39**	**0,00**	**0,00**	**6,28**	**0,00**	

Compost application

3.1.1.7. Farm 19.2 – Peach - ZINCAL 8 - Suriano Frutta

Application of practices in the control plot by the farmer
The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	May 2017 – July 2017 – October 2017 3 applications	Winter and Summer pruning
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 – October 2017 2 application	
Thinning	April 2017 1 application	
Fertilizing	Mechanical applications: 6 application	Details on relevant table
Irrigation	Number: 45 Total amount: 8062,03 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
21/04/17	95,65	
24/04/17	95,65	
28/04/17	95,65	
01/05/17	95,65	
05/05/17	95,65	
08/05/17	95,65	
12/05/17	95,65	
15/05/17	95,65	
19/05/17	127,83	
22/05/17	127,83	
26/05/17	127,83	
29/05/17	127,83	
02/06/17	127,83	
05/06/17	127,83	
09/06/17	127,83	
12/06/17	127,83	
16/06/17	127,83	
19/06/17	127,83	

Date	Amount (m^3 ha^{-1})	Remarks
23/06/17	127,83	
26/06/17	127,83	
30/06/17	135,36	
03/07/17	135,36	
07/07/17	135,36	
10/07/17	135,36	
14/07/17	135,36	
17/07/17	135,36	
21/07/17	135,36	
24/07/17	135,36	
28/07/17	412,46	
31/07/17	412,46	
04/08/17	412,46	
07/08/17	412,46	
11/08/17	248,99	
14/08/17	248,99	
18/08/17	248,99	
20/08/17	11,59	
21/08/17	240,29	
25/08/17	240,29	
28/08/17	29,28	
01/09/17	225,51	
04/09/17	225,51	
08/09/17	595,36	
11/09/17	595,36	
15/09/17	60,00	
18/09/17	60,00	
TOTAL	**8062,03**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
07.03.17	Liquid	FULVIC ACIDS	0,00	0,00	0,00	0,00	0,00	0,00	0,00	MECHANICAL
18.03.17	Granulate	NOVATEC	7,47	6,12	0,00	0,00	0,00	0,00	0,00	MECHANICAL
18.03.17	Granulate	POTASSIUM NITRATE	6,07	0,00	17,83	0,00	0,00	0,00	0,00	MECHANICAL
12.04.17	Granulate	POLYFEED	7,47	1,22	12,02	0,00	0,00	0,00	0,00	MECHANICAL

12.04.17	Granulate	MAGNESIUM NITRATE	3,21	0,00	0,00	0,00	0,00	3,17	0,00	MECHANICAL
22.09.17	Granulate	AMMONIUM SULPHATE	18,39	0,00	0,00	0,00	0,00	0,00	0,00	MECHANICAL
TOTAL			**42,61**	**7,34**	**29,85**	**0,00**	**0,00**	**3,17**	**0,00**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 – July 2017 – October 2017 3 applications	Winter and Summer pruning
Mechanical Cultivation		Not applied
Mechanical weed control	July 2017 – October 2017 2 application	
Thinning	April 2017 1 application	
Fertilizing	Fertigation: 4 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 158 Total amount: 4316,23 $m^3\ ha^{-1}$	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
21/04/2017	31,88	
22/04/2017	31,88	
23/04/2017	31,88	
24/04/2017	31,88	
25/04/2017	31,88	
26/04/2017	31,88	
27/04/2017	31,88	
28/04/2017	31,88	
29/04/2017	31,88	
30/04/2017	31,88	
01/05/2017	31,88	
02/05/2017	31,88	
03/05/2017	31,88	
04/05/2017	31,88	
05/05/2017	31,88	
06/05/2017	31,88	
07/05/2017	31,88	
08/05/2017	31,88	
09/05/2017	31,88	
10/05/2017	31,88	
11/05/2017	31,88	
12/05/2017	31,88	

Date	Amount (m^3 ha^{-1})	Remarks
13/05/2017	31,88	
14/05/2017	31,88	
15/05/2017	31,88	
16/05/2017	31,88	
17/05/2017	34,20	
18/05/2017	34,20	
19/05/2017	34,20	
20/05/2017	34,20	
21/05/2017	34,20	
22/05/2017	34,20	
23/05/2017	34,20	
24/05/2017	34,20	
25/05/2017	34,20	
26/05/2017	34,20	
27/05/2017	34,20	
28/05/2017	34,20	
29/05/2017	34,20	
30/05/2017	34,20	
31/05/2017	34,20	
01/06/2017	34,20	
02/06/2017	34,20	
03/06/2017	34,20	
04/06/2017	34,20	
05/06/2017	34,20	
06/06/2017	34,20	
07/06/2017	34,20	
08/06/2017	34,20	
09/06/2017	34,20	
10/06/2017	34,20	
11/06/2017	34,20	
12/06/2017	34,20	
13/06/2017	34,20	
14/06/2017	34,20	
15/06/2017	34,20	
16/06/2017	34,20	
17/06/2017	34,20	
18/06/2017	34,20	
19/06/2017	34,20	
20/06/2017	34,20	
21/06/2017	34,20	
22/06/2017	34,20	
23/06/2017	34,20	
24/06/2017	34,20	

Date	Amount (m^3 ha^{-1})	Remarks
25/06/2017	34,20	
26/06/2017	34,20	
27/06/2017	34,20	
28/06/2017	34,20	
29/06/2017	39,71	
30/06/2017	39,71	
01/07/2017	39,71	
02/07/2017	39,71	
03/07/2017	39,71	
04/07/2017	39,71	
05/07/2017	39,71	
06/07/2017	39,71	
07/07/2017	39,71	
08/07/2017	39,71	
09/07/2017	39,71	
10/07/2017	39,71	
11/07/2017	39,71	
12/07/2017	39,71	
13/07/2017	39,71	
14/07/2017	39,71	
15/07/2017	39,71	
16/07/2017	39,71	
17/07/2017	39,71	
18/07/2017	39,71	
19/07/2017	39,71	
20/07/2017	39,71	
21/07/2017	39,71	
22/07/2017	39,71	
23/07/2017	39,71	
24/07/2017	39,71	
25/07/2017	39,71	
26/07/2017	39,71	
27/07/2017	16,81	
28/07/2017	16,81	
29/07/2017	16,81	
30/07/2017	16,81	
31/07/2017	16,81	
01/08/2017	16,81	
02/08/2017	16,81	
03/08/2017	16,81	
04/08/2017	16,81	
05/08/2017	16,81	
06/08/2017	16,81	

Date	Amount (m^3 ha^{-1})	Remarks
07/08/2017	16,81	
08/08/2017	16,81	
09/08/2017	16,81	
10/08/2017	16,81	
11/08/2017	12,17	
12/08/2017	12,17	
13/08/2017	12,17	
14/08/2017	12,17	
15/08/2017	12,17	
16/08/2017	12,17	
17/08/2017	12,17	
18/08/2017	12,17	
21/08/2017	9,28	
22/08/2017	10,72	
23/08/2017	10,72	
24/08/2017	10,72	
25/08/2017	10,72	
26/08/2017	10,43	
27/08/2017	10,43	
28/08/2017	10,43	
29/08/2017	10,43	
30/08/2017	20,87	
31/08/2017	20,87	
01/09/2017	20,87	
02/09/2017	20,87	
03/09/2017	20,87	
04/09/2017	20,87	
05/09/2017	20,87	
06/09/2017	20,87	
07/09/2017	13,91	
08/09/2017	13,91	
09/09/2017	13,91	
10/09/2017	13,91	
11/09/2017	13,91	
12/09/2017	13,91	
13/09/2017	8,70	
14/09/2017	8,70	
15/09/2017	8,70	
16/09/2017	8,70	
17/09/2017	8,70	
18/09/2017	8,70	
19/09/2017	8,70	
20/09/2017	8,70	

Date	Amount (m^3 ha^{-1})	Remarks
21/09/2017	8,70	
22/09/2017	23,48	
23/09/2017	23,48	
24/09/2017	23,48	
25/09/2017	23,48	
26/09/2017	23,48	
27/09/2017	15,07	
TOTAL	**4316,23**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
18.03.17	granulare	POTASIUM NITRATE	6,31	0,00	18,55	0,00	0,00	0,00	0,00	FERTIGATION
12.04.17	granulare	POLYFEED	7,77	1,27	12,50	0,00	0,00	0,00	0,00	FERTIGATION
12.04.17	granulare	MAGNESIUM NITRATE	3,34	0,00	0,00	0,00	0,00	3,29	0,00	FERTIGATION
22.09.17	granulare	AMMONIUM SULPHATE	19,13	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
TOTAL			**36,55**	**1,27**	**31,05**	**0,00**	**0,00**	**3,29**	**0,00**	

3.1.1.8. Farm 30 – Olive – OGLIAROLA - Bonfiglio

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 1 applications	Winter pruning
Mechanical Cultivation		Not applied
Mechanical weed control		
Thinning		Not applied
Fertilizing		Not applied
Irrigation	Number: 4 Total amount: 500,96 m^3 ha^{-1}	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
27/06/2017	127,3	
16/07/2017	121,2	
24/07/2017	131,3	
18/08/2017	121,2	
TOTAL	**500,96**	

Fertilizing by farmer in the control plot

Not applicable: for this farm fertilization was not applied.

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning	April 2017 - 1 applications	Winter pruning
Mechanical Cultivation		Not applied
Mechanical weed control	June 2017 – October 2017 2 applications	
Thinning		Not applied
Fertilizing		Not applied
Compost application	March 2017 – 1 application	
Irrigation	Number: 41 Total amount: 1500,13 m^3 ha^{-1}	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
15/05/2017	36,74	
17/05/2017	36,74	
19/05/2017	36,74	
22/05/2017	36,74	
24/05/2017	36,74	
26/05/2017	36,74	
29/05/2017	36,74	
31/05/2017	36,74	
02/06/2017	36,74	
05/06/2017	36,74	
07/06/2017	36,74	
09/06/2017	36,53	
12/06/2017	36,53	
14/06/2017	36,53	
16/06/2017	36,53	
19/06/2017	36,53	
21/06/2017	36,53	
23/06/2017	36,53	

Date	Amount (m^3 ha^{-1})	Remarks
26/06/2017	36,53	
28/06/2017	36,53	
30/06/2017	36,53	
03/07/2017	36,53	
05/07/2017	36,53	
07/07/2017	36,53	
10/07/2017	36,53	
12/07/2017	36,53	
14/07/2017	36,53	
17/07/2017	36,53	
19/07/2017	36,53	
21/07/2017	36,53	
24/07/2017	36,53	
26/07/2017	36,53	
28/07/2017	36,53	
31/07/2017	36,53	
02/08/2017	36,53	
04/08/2017	36,53	
07/08/2017	36,53	
09/08/2017	36,53	
11/08/2017	36,53	
14/08/2017	36,53	
16/08/2017	36,53	
TOTAL	**1500,13**	

Fertilizing by farmer in the demonstration plot

Not applicable: for this farm there wasn't fertilization.

3.1.1.9. Farm 24.1 – Olive – OGLIAROLA - Tuzio

Application of practices in the control plot by the farmer

The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning		Not applied
Mechanical Cultivation		Not applied
Mechanical weed control		Not applied
Thinning		Not applied
Fertilizing	Mechanical applications: 4 application Fertigation: 3 application	Details on relevant table
Irrigation	Number: 20 Total amount: 415,26 $m^3 ha^{-1}$	Details on relevant table

Irrigation by farmer in the control plot

Date	Amount (m^3 ha^{-1})	Remarks
12/05/2017	6,76	
18/05/2017	6,76	
22/05/2017	19,93	
01/06/2017	19,93	
08/06/2017	19,93	
15/06/2017	19,93	
22/06/2017	20,58	
28/06/2017	13,13	
05/07/2017	13,13	
12/07/2017	13,13	
19/07/2017	22,08	
26/07/2017	28,07	
02/08/2017	28,07	
09/08/2017	28,07	
16/08/2017	28,07	
20/08/2017	28,07	
23/08/2017	3,99	
30/08/2017	38,40	
06/09/2017	38,40	
07/09/2017	18,82	
TOTAL	**415,26**	

Fertilizing by farmer in the control plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
19.02.17	AMMONIUM SULPHATE (21%N)	CRISTAL 21%	70,69	0,00	0,00	0,00	0,00	0,00	0,00	MECHANICAL
04.03.17	MINERAL FERTILIZER 12-12-17	Nitrophoska® special 12+12+17 (+2+20)	46,17	20,16	57,49	0,00	0,00	4,64	0,00	MECHANICAL
20.06.17	FOLIAR APPLICATION 20-20-20+MICRO	CIFO FLORAL 20-20-21	0,48	0,21	0,40	0,00	0,00	0,00	0,00	MECHANICAL
25.07.17	NITRAM	AMMONIUM NITRATE	8,18	0,00	0,00	0,00	0,00	0,00	0,00	FERTIGATION
25.0717	UREA PHOSPHAT		2,10	2,34	0,00	0,00	0,00	0,00	0,00	FERTIGATION

	E									
25.07.17	POTASSIUM NITRATE	KRISTA K PLUS	3,25	0,00	9,18	0,00	0,00	0,00	0,00	FERTIGATION
20.09.17	FOLIAR APPLICATION 20-20-20+MICRO	CIFO FLORAL 20-20-21	0,48	0,21	0,40	0,00	0,00	0,00	0,00	MECHANICAL
TOTAL			**131,35**	**22,91**	**67,47**	**0,00**	**0,01**	**4,64**	**0,00**	

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demostration plot

Practice	Dates or number of applications	Remarks
Pruning		Not applied
Mechanical Cultivation		Not applied
Mechanical weed control	June 2017 – October 2017 2 application	
Thinning		Not applied
Fertilizing	Mechanical applications: 3 application	Details on relevant table
Compost application	March 2017 – 1 application	
Irrigation	Number: 53 Total amount: 1190,00 $m^3 ha^{-1}$	Details on relevant table

Irrigation by farmer in the demonstration plot

Date	Amount (m^3 ha^{-1})	Remarks
16/05/2017	22,45	
18/05/2017	22,45	
20/05/2017	22,45	
23/05/2017	22,45	
25/05/2017	22,45	
27/05/2017	22,45	
30/05/2017	22,45	
01/06/2017	22,45	
03/06/2017	22,45	
06/06/2017	22,45	
08/06/2017	22,45	
10/06/2017	22,45	
13/06/2017	22,45	
15/06/2017	22,45	
17/06/2017	22,45	
20/06/2017	22,45	
22/06/2017	22,45	
24/06/2017	22,45	
27/06/2017	22,45	
29/06/2017	22,45	
01/07/2017	22,45	

Date	Amount (m^3 ha^{-1})	Remarks
04/07/2017	22,45	
06/07/2017	22,45	
08/07/2017	22,45	
11/07/2017	22,45	
13/07/2017	22,45	
15/07/2017	22,45	
18/07/2017	22,45	
20/07/2017	22,45	
22/07/2017	22,45	
25/07/2017	22,45	
27/07/2017	22,45	
29/07/2017	22,45	
01/08/2017	22,45	
03/08/2017	22,45	
05/08/2017	22,45	
08/08/2017	22,45	
10/08/2017	22,45	
12/08/2017	22,45	
15/08/2017	22,45	
17/08/2017	22,45	
19/08/2017	22,45	
22/08/2017	22,45	
24/08/2017	22,45	
26/08/2017	22,45	
29/08/2017	22,45	
31/08/2017	22,45	
02/09/2017	22,45	
05/09/2017	22,45	
07/09/2017	22,45	
12/09/2017	22,45	
14/09/2017	22,45	
16/09/2017	22,45	
TOTAL	**1190,00**	

Fertilizing by farmer in the demonstration plot

Date of Application	Fertilizer type	Common name / Trade name	N	P	K	B	FE	MG	CaO	Application Local / Broadcast
19.02.17	AMMONIUM SULPHATE (21%N)	CRISTAL	71,64	0,00	0,00	0,00	0,00	0,00	0,00	MECHANICAL
20.06.17	FOLIAR 20-20-20+MICRO	CIFO FLORAL 20-20-20	0,49	0,21	0,40	0,00	0,00	0,00	0,00	MECHANICAL
20.09.17	FOLIAR 20-20-20+MICRO	CIFO FLORAL 20-20-20	0,49	0,21	0,40	0,00	0,00	0,00	0,00	MECHANICAL
TOTAL			**72,62**	**0,43**	**0,81**	**0,00**	**0,01**	**0,00**	**0,00**	

3.1.1.10. Farm 21.2 – Olive – OGLIAROLA - Fortunato

Application of practices in the control plot by the farmer
The practices applied in the control plots by the farmer are presented below. They consist in fertilization, irrigation, pruning, thinning, weed mowing and mechanical soil tillage.

List of practices applied by the farmer in the control plot

Practice	Dates or number of applications	Remarks
Pruning		Not applied
Mechanical Cultivation		Not applied
Mechanical weed control		Not applied
Thinning		Not applied
Fertilizing		Not applied

Irrigation by farmer in the demonstration plot

Not applicable: This farm is managed under rainfed conditions

Fertilizing by farmer in the control plot

Not applicable: for this farm fertilization was not applied.

Application of practices in the demonstration plot

The GAPs applied in the demonstration plots under UNIBAS advice are presented below. They consist in fertilization (compost and mineral fertilizers addition after soil nutrient monitoring), sustainable management of irrigation, pruning (summer and winter), thinning, weed mowing and no soil tillage.

List of practices applied by the farmer in the demonstration plot

Practice	Dates or number of applications	Remarks
Pruning		Not applied
Mechanical Cultivation		Not applied
Mechanical weed control		Not applied
Thinning		Not applied
Fertilizing		Not applied
Compost application	March 2017 – 1 application	

Irrigation by farmer in the demonstration plot

Not applicable: for this farm there wasn't irrigation.

Fertilizing by farmer in the demonstration plot

Not applicable: for this farm there wasn't fertilization.

Differentiation between farmer's and LIFE ACW approach

During the first implementation year the instruments were installed and calibrated during the already started growing season (March-April 2017) and also GAPs started on March 2017, in which mainly peach and apricot crops, in particular early varieties, were in an advanced growing season (harvest occurred between May and June 2017). For this reason, values of yield (t ha-1) were the same for most of the pilots because of the application of GAPs did not affect the production for demo compared to control plots. In addition, hydrometers were installed between April and June 2017, when the irrigation season was already started. For this reason, irrigation volumes recorded in the AWMS forms are different from the volumes used in the calculation of performance indicators. In this case, the irrigation volumes were estimated according to historical meteorological data.

3.1.2. Overview of 1st year of monitoring in Agri-Basin

Installation of monitoring equipment

Table 7. Installation of monitoring equipment in the pilot sites, with the relative dates of installation.

Parcel Code	code	farm	Date	Soil moisture Sensor Sentec	Atmometr	Tensiometr	Netafim soil moisture sensors	Lysimeter AGQ
19,1	peach_demo	SURIANO FRUTTA soc.	16/03/17	✓		✓		
	peach_control							
18,3	apricot_demo	Valicenti Giuseppe	23/03/17	✓	✓	✓		
	apricot_control							
19,2	peach_demo	SURIANO FRUTTA soc.	30/03/17	✓	✓			
	peach_control							
10,1	citrus_demo	Carrino Salvatore	3/24/17	✓	✓			
	citrus_control							
15,2	citrus_demo	Faillace	17/03/17	✓				
	citrus_control							
5,1	apricot_demo	Tristano Alessandro	16/03/17	✓		✓	3/31/17	5/3/17
	apricot_ control	Tristano Alessandro						5/3/17
5,2	apricot_demo	Tristano Alessandro		5/01/18				
	apricot_ control	Tristano Alessandro						
33	peach_demo	Defilippis Valeria	23/03/17	✓		✓	✓	✓
	peach_control	Defilippis Valeria						✓
24,2	olive_demo	Tuzio Angelo	30/03/17	✓	✓	✓		
	olive_control							
30,1	olive_demo	Bonfiglio Donato						
	olive_demo							
21,2	olive_demo	Fortunato Leonardo						
	olive_control							

List of Parameters for the Italian site

According to the farm specific action plans that have been reported in Deliverable C.3.2 and to the protocols presented in the deliverable D1, the list of monitoring parameters in the Italian area are as follows:

- Recording of applications
- Recording of soil moisture
- Recording of leaf area index (LAI)
- Soil sampling and analyses
- Leaf sampling and analyses
- Nitrate soil content
- Recording of irrigation water use
- Fruit yield
- Biomass from pruning
- Biomass from weed mowing
- Biomass from thinning
- Nutritional balance

Moreover, an extra set of data will be monitored not per farm but on a pilot area basis:

- Monitoring of meteorological data
- Organic fertilizers analysis
- Irrigation water analysis

Table 8. List of monitored parameters in the Italian area

Parameter	Scheduled number of farms	Actual number of farms
Recording of soil moisture	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3
Recording of leaf area index (LAI)	Total: 5 Apricot:2 Peach:3	Total: 5 Apricot:2 Peach:3
Soil sampling and analyses	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3
Leaf sampling and analyses		
Nitrate soil content	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3
Recording of irrigation water use	Total: 9 Olive: 2 Citrus: 2 Apricot:2	Total: 9 Olive: 2 Citrus: 2 Apricot:2

	Peach:3	Peach:3
Fruit yield	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3
Recording and analyses of surface runoff	Total: 2 (only the sloped field) Olive: 2	Total: 2(only the sloped field) Olive: 2
Monitoring of meteorological data	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3
Biomass from pruning	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 5 Olive: 2 Apricot:2 Peach:1
Biomass from weed mowing	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 1 Citrus: 1
Biomass from thinning	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 4 Apricot:1 Peach:3
Irrigation water analysis	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	water analysis was carried out before the start of the monitoring period
Organic fertilizers analysis	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3
Nutritional balance	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3	Total: 10 Olive: 3 Citrus: 2 Apricot:2 Peach:3

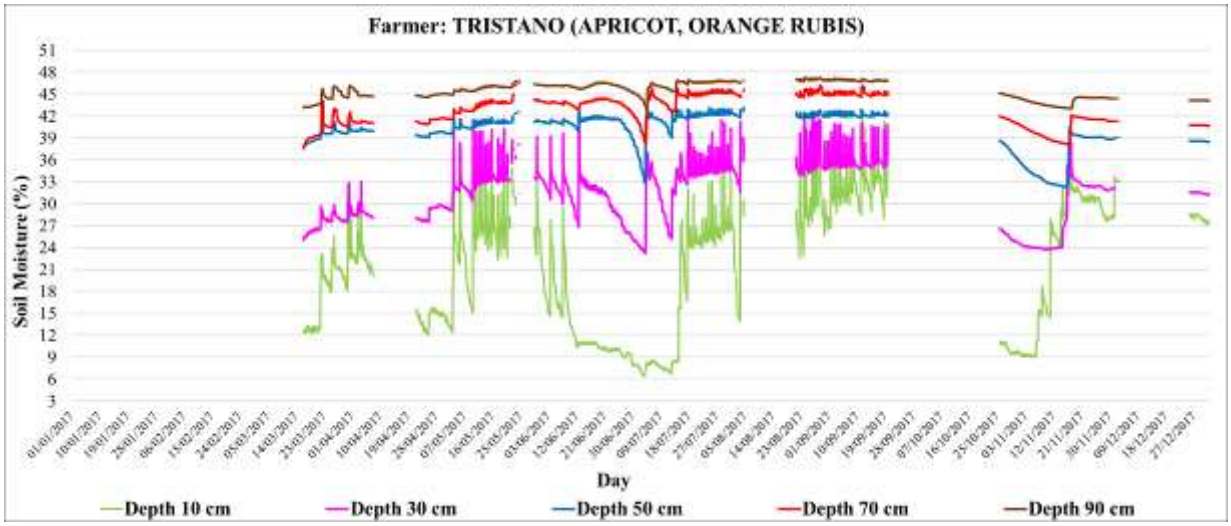
3.1.2.1. Farm 01 – 5.1 - Apricot - ORANGE RUBIS – Tristano

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Demo 13/04/2017 Control 24/04/2017	LAI by summer pruning biomass weight and calculation	Control and demo
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses		Lab analysis	
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning	24/04/2017	Weight	Demo parcel
Biomass from weed mowing			
Biomass from thinning	14/04/2017	Weight	Demo parcel
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



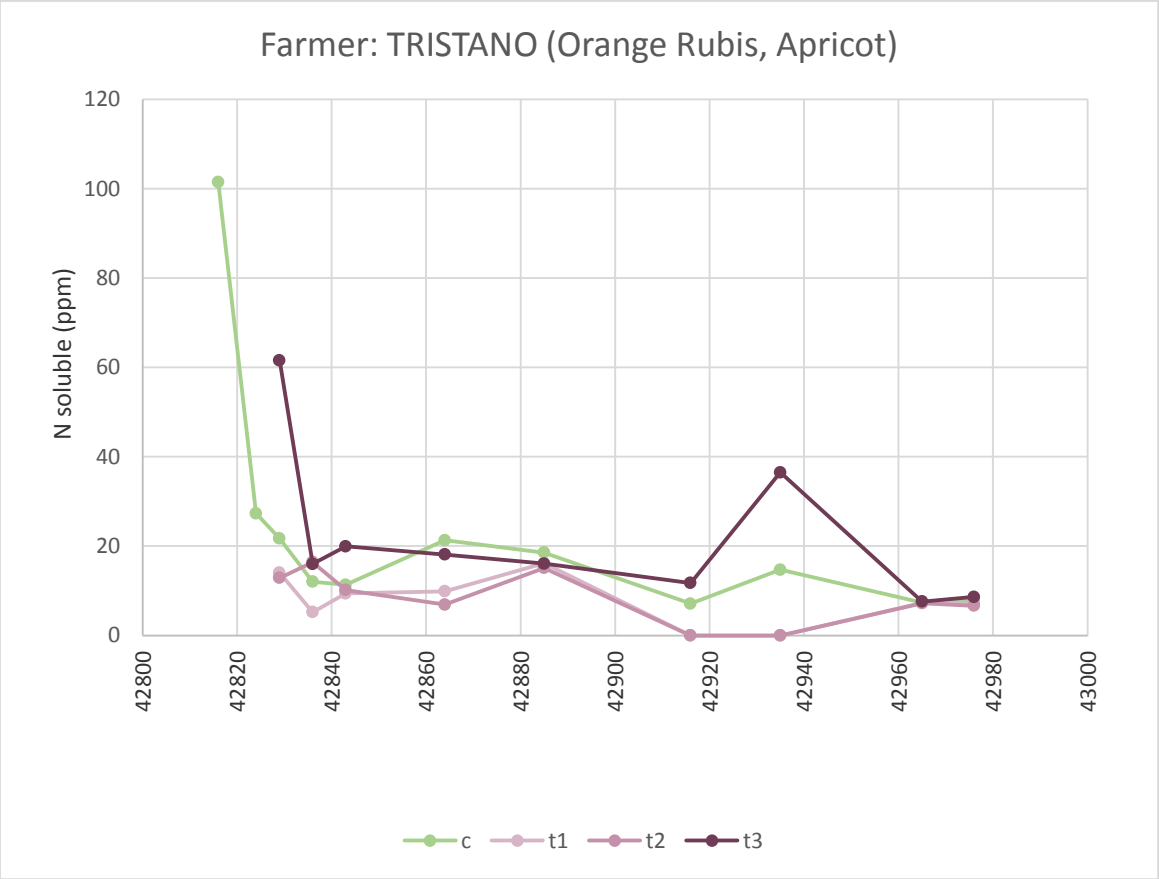
The trend of soil moisture at different depths was assessed by probes installed in the field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-30 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer (10-30cm).

Installation of soil moisture probes.

Recording of leaf area index (LAI)

FARMER	CROP	$LAI_{watersprouts}$ [m^2 $plant^{-1}$]
TRISTANO	Apricot	2,86

Nitrate soil content



The trend of the graph shows the different values of N soluble in the soil throughout the season, comparing control and demo plots characterized by the addition of different amount of compost: t1=10 t/ha, t2=20 t/ha, t3=30 t/ha. The analysis was carried out for both the demonstrative parcel and for the control.

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
TRISTANO	Apricot	4560,79	4728,00

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
TRISTANO	Apricot	30000,00	30000,00

Soil sampling and analyses

ANALISI CHIMICO-FISICA

Parametro	Valore	Giudizio	Parametro	Valore	Giudizio
SCHELETRO		TRA *tracce*	REAZIONE (1:2.5)	pH 7,7	*sub alcalina*
SABBIA (2.0-0.05 mm)	% 60		COND. elet. (1:2.5)	mS/cm 0,187	*normale*
LIMO (0.05-0.002 mm)	% 19		CALCARE totale	TRA	*tracce*
ARGILLA (<0.002 mm)	% 21		SOSTANZA organica	% 2,36	*med. fornita*
TESSITURA	FAS *franco arg. sabbiosa*				

ANALISI NUTRIENTI

Parametro	Valore	Giudizio	Parametro	Valore	Giudizio
AZOTO totale (N)	% 0,139	*medio*	ZINCO ass. (Zn)	ppm 1,8	*medio*
FOSFORO ass. (P)	ppm 27	*alto*	CALCIO scam.(Ca)	ppm 2600	*m. alto*
FERRO ass. (Fe)	ppm 12,0	*medio*	MAGNESIO scam.(Mg)	ppm 330	*m. alto*
MANGANESE ass. (Mn)	ppm 9,4	*medio*	POTASSIO scam. (K)	ppm 340	*m. alto*
RAME ass. (Cu)	ppm 1,8	*medio*	SODIO scam.(Na)	ppm 64	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq 16,82		*medio*
CALCIO	meq 13,00	77,2	*alto*
MAGNESIO	meq 2,67	15,9	*m. alto*
POTASSIO	meq 0,87	5,2	*alto*
SODIO	meq 0,28	1,7	*normale*
SATURAZIONE BASICA		100,0	*alta*
RAPPORTO Mg/K	3,07		*medio*

Biomass from pruning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from pruning	24/04/2017	0.256

Weight of biomass from summer pruning.

Biomass from thinning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from thinning	14/04/2017	0.116

Nutritional balance

FARMER		**TRISTANO**
CROP		APRICOT
CV		**Orange Rubis**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	153.15
	P	17.98
	K	160.87
	Ca	145.53
	Mg	19.85
INPUT: S.O., Compost, Irrigation water (Kg/ha)	N	73.23
	P	10.15
	K	124.75
	Ca	339.43
	Mg	87.59
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**79.92**
	P	**7.83**
	K	**36.12**
	Ca	**-193.90**
	Mg	**-67.73**

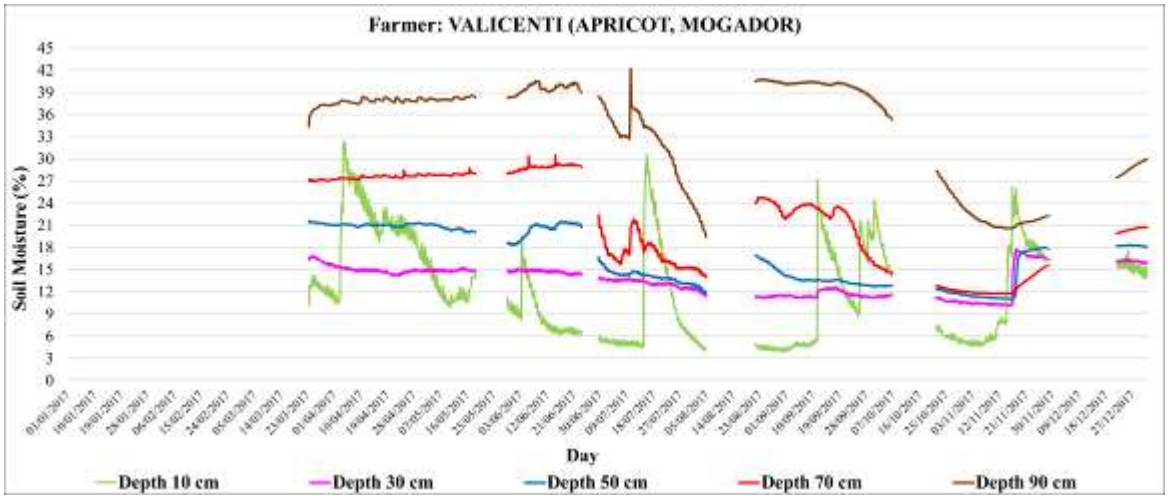
3.1.2.2. Farm 02 – 18.3 – Apricot – MOGADOR – Valicenti

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Demo 18/05/2017 Control 29/05/2017	LAI by summer pruning biomass weight and calculation	Control and demo
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning	18/05/217	Weight	Demo parcel
Biomass from weed mowing			
Biomass from thinning			
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in the field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-30 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer (10-30cm).

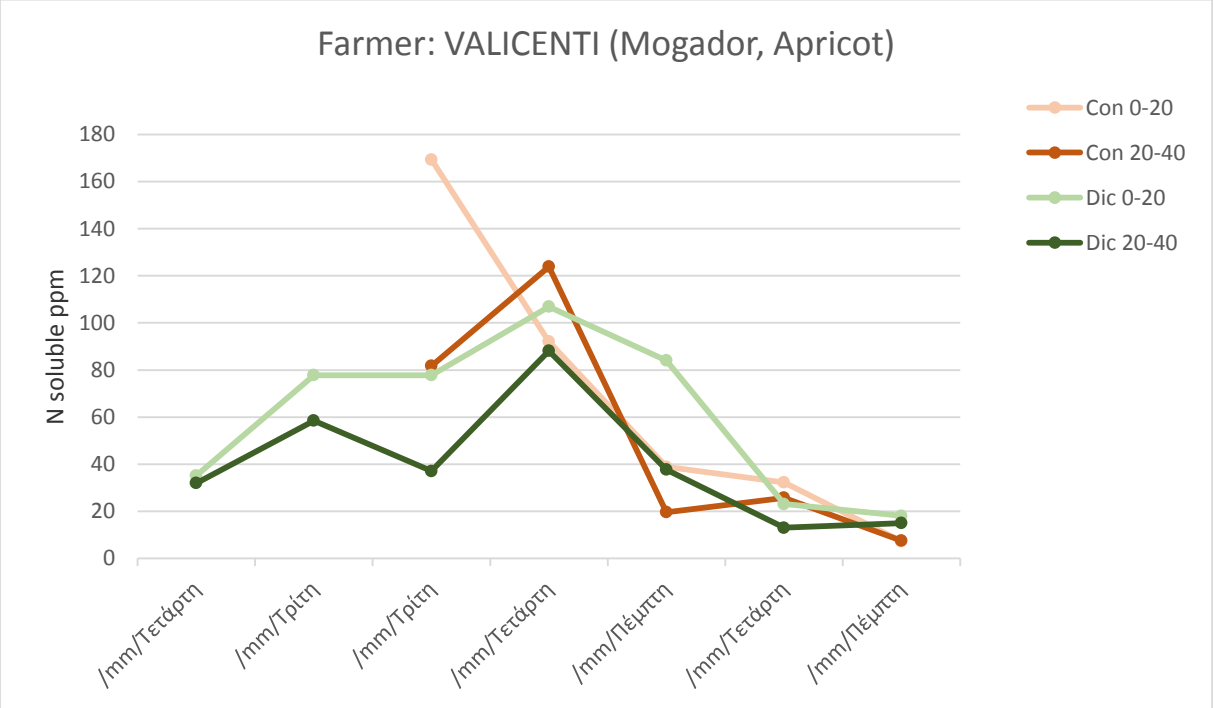
Recording of leaf area index (LAI)

FARMER	CROP	$LAI_{watersprouts}$ [m^2 $plant^{-1}$]
VALICENTI	Apricot	3.13

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
VALICENTI	Apricot	4741,13	5627,71

Nitrate soil content



The trend of the graph shows the different values of N soluble (ppm) in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
VALICENTI	Apricot	10000,00	10000,00

Soil sampling and analyses

ANALISI CHIMICO-FISICA

Parametro	Valore	Giudizio	Parametro	Valore	Giudizio
SCHELETRO	SKN	*sensibile*	REAZIONE (1:2.5)	pH 7,4	*sub alcalina*
SABBIA	% 51		COND. elet. (1:2.5)	mS/cm 0,200	*normale*
LIMO	% 22		CALCARE totale	TRA	*tracce*
ARGILLA	% 27		SOSTANZA organica	% 1,45	*bassa*
TESSITURA	PAS	*franco arg. sabbiosa*			

ANALISI NUTRIENTI

Parametro	Valore	Giudizio	Parametro	Valore	Giudizio
AZOTO totale (N)	% 0,090	*basso*	ZINCO ass. (Zn)	ppm 1,8	*medio*
FOSFORO ass. (P)	ppm 25	*alto*	CALCIO scam.(Ca)	ppm 2100	*m. alto*
FERRO ass. (Fe)	ppm 13,2	*medio*	MAGNESIO scam.(Mg)	ppm 360	*m. alto*
MANGANESE ass. (Mn)	ppm 23,2	*alto*	POTASSIO scam. (K)	ppm 321	*m. alto*
RAME ass. (Cu)	ppm 2,2	*medio*	SODIO scam.(Na)	ppm 71	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq 14,63		*media*
CALCIO	meq 10,50	71,8	*alta*
MAGNESIO	meq 3,00	20,5	*m. alta*
POTASSIO	meq 0,82	5,6	*alta*
SODIO	meq 0,31	2,1	*normale*
SATURAZIONE BASICA		100,0	*alta*
RAPPORTO Mg/K	3,66		*media*

The images above report some operations related soil sampling.

Biomass from pruning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from pruning	18/05/217	0,408

Nutritional balance

FARMER		**VALICENTI**
CROP		APRICOT
CV		**Mogador**
OUTPUT (harvested fruits and nutrients fixed in vegetable organs) (Kg/ha)	N	107,86
	P	19,28
	K	104,16
	Ca	180,25
	Mg	20,69
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	80,32
	P	10,07
	K	119,90
	Ca	295,34
	Mg	70,58
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**27,54**
	P	**9,21**
	K	**-15,75**
	Ca	**-115,09**
	Mg	**-49,89**

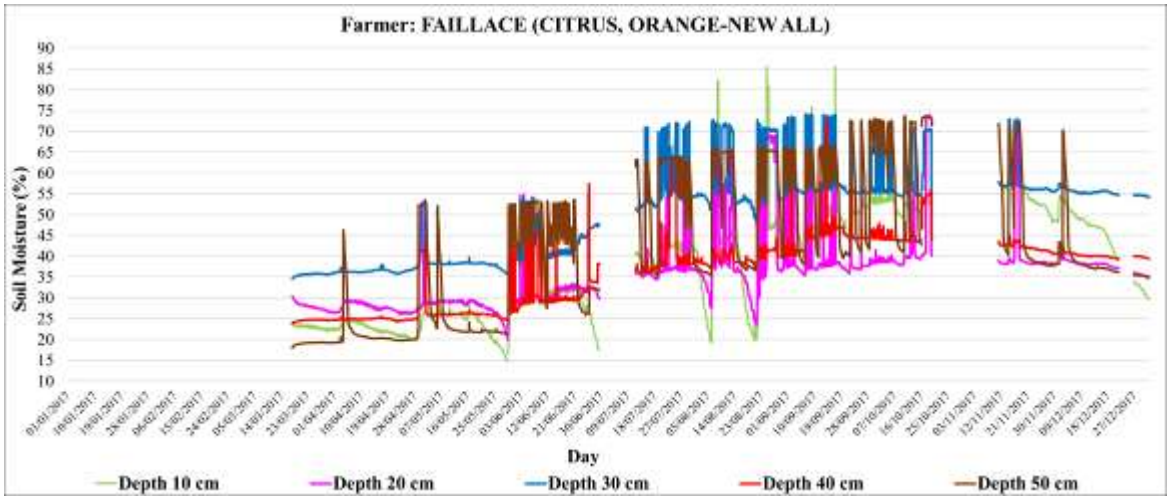
3.1.2.3. Farm 03 – 15.2 – Citrus - NEW ALL – Faillace

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Not applicable	Not applicable	Not applicable
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning			
Biomass from weed mowing	15/07/2017	Weight	Demo parcel
Biomass from thinning			
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture

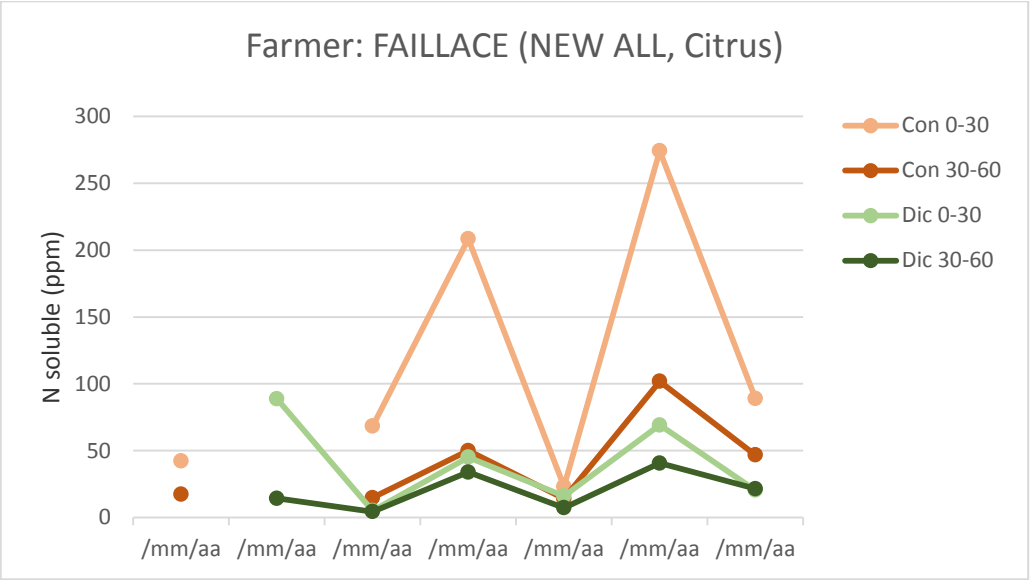


The trend of soil moisture at different depths was assessed by probes installed in the field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-50 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer.

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
FAILLACE	Citrus	6597,12	6622,46

Nitrate soil content



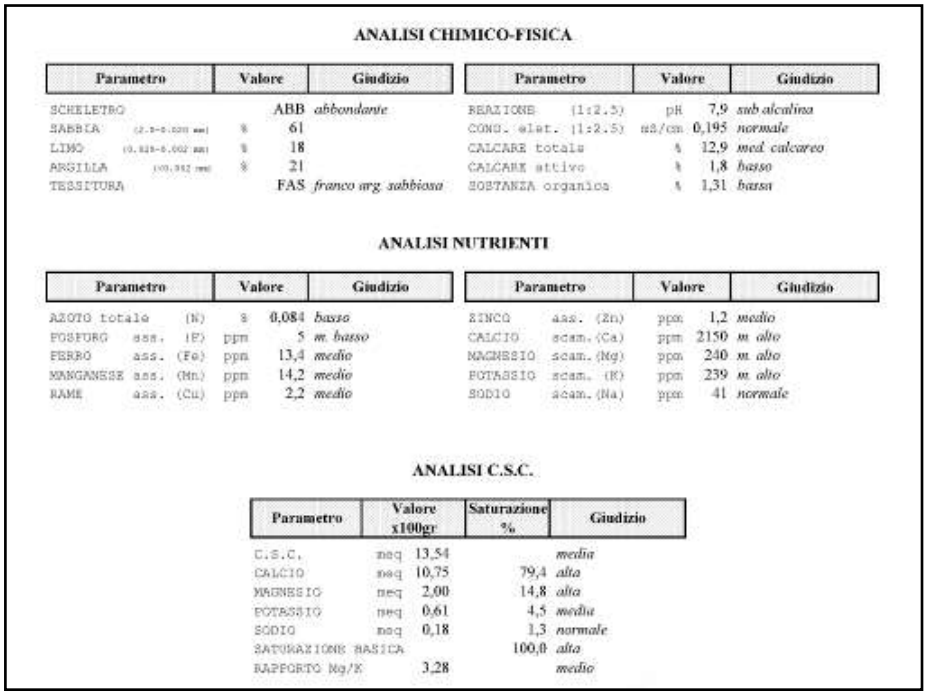
The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
FAILLACE	Citrus	30000,00	30000,00

The images above report some operations related fruits harvest.

Soil sampling and analyses



ANALISI CHIMICO-FISICA

Parametro	Valore		Giudizio	Parametro	Valore		Giudizio
SCHELETRO	ABB		*abbondante*	REAZIONE (1:2.5)	pH	7,9	*sub alcalina*
SABBIA	61	%		COND. elet. (1:2.5)	mS/cm	0,195	*normale*
LIMO	18	%		CALCARE totale	%	12,9	*med. calcareo*
ARGILLA	21	%		CALCARE attivo	%	1,8	*basso*
TESSITURA	FAS		*franco arg. sabbiosa*	SOSTANZA organica	%	1,31	*basso*

ANALISI NUTRIENTI

Parametro	Valore		Giudizio	Parametro	Valore		Giudizio
AZOTO totale (N)	0,084	%	*basso*	ZINCO ass. (Zn)	1,2	ppm	*medio*
FOSFORO ass. (P)	5	ppm	*m. basso*	CALCIO scam. (Ca)	2150	ppm	*m. alto*
FERRO ass. (Fe)	13,4	ppm	*medio*	MAGNESIO scam. (Mg)	240	ppm	*m. alto*
MANGANESE ass. (Mn)	14,2	ppm	*medio*	POTASSIO scam. (K)	239	ppm	*m. alto*
RAME ass. (Cu)	2,2	ppm	*medio*	SODIO scam. (Na)	41	ppm	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr		Saturazione %	Giudizio
C.S.C.	meq	13,54		*media*
CALCIO	meq	10,75	79,4	*alta*
MAGNESIO	meq	2,00	14,8	*alta*
POTASSIO	meq	0,61	4,5	*media*
SODIO	meq	0,18	1,3	*normale*
SATURAZIONE BASICA			100,0	*alta*
RAPPORTO Mg/K		3,28		*media*

Biomass from weed mowing (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from weed mowing	15/07/2017	0.162

Nutritional balance

FARMER		**FAILLACE**
CROP		CITRUS
CV		**Navel**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	126,97
	P	10,44
	K	47,56
	Ca	163,82
	Mg	12,67
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	67,68
	P	10,27
	K	132,03
	Ca	405,57
	Mg	113,10
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**59,29**
	P	**0,17**
	K	**-84,47**
	Ca	**-241,74**
	Mg	**-100,43**

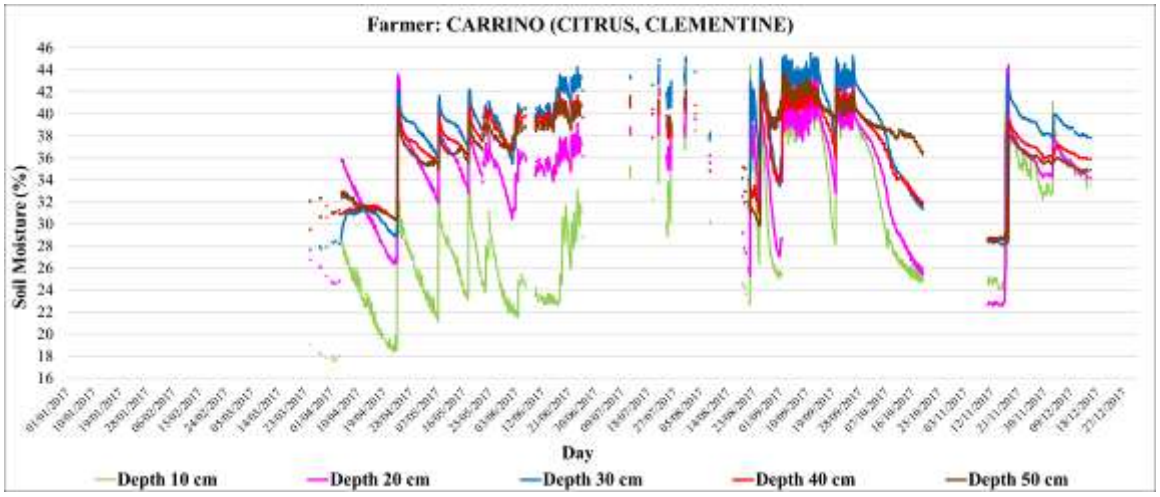
3.1.2.4. Farm 04 – 10.1 – Citrus – CLEMENTINE – Carrino

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Not applicable	Not applicable	Not applicable
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning			
Biomass from weed mowing			
Biomass from thinning			
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



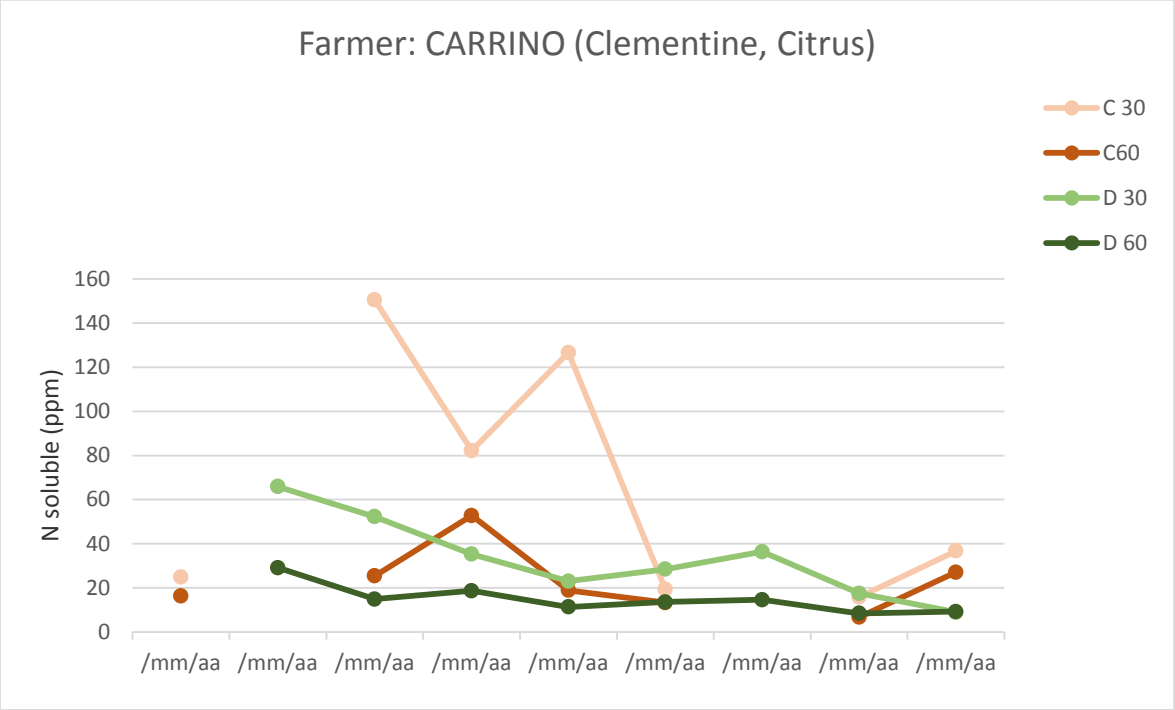
The trend of soil moisture at different depths was assessed by probes installed in the field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-50 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer.

The images above report the installation of soil moisture probes.

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
CARRINO	Citrus	6519,00	7965,00

Nitrate soil content

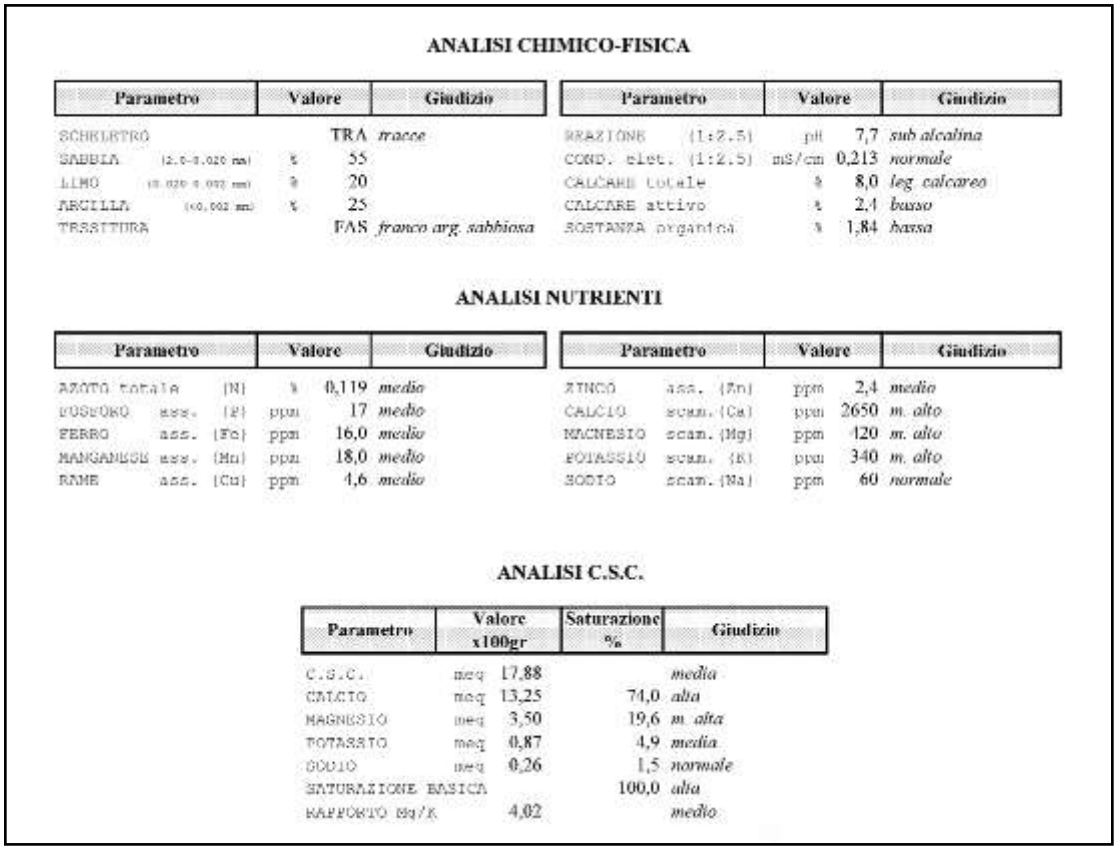


The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
CARRINO	Citrus	30000,00	30000,00

Soil sampling and analyses



ANALISI CHIMICO-FISICA

Parametro			Valore	Giudizio	Parametro			Valore	Giudizio
SCHELETRO			TRA	*tracce*	REAZIONE	(1:2.5)	pH	7,7	*sub alcalina*
SABBIA	(2.0-0.020 mm)	%	55		COND. elet.	(1:2.5)	mS/cm	0,213	*normale*
LIMO	(0.020-0.002 mm)	%	20		CALCARE totale		%	8,0	*leg. calcareo*
ARGILLA	(<0.002 mm)	%	25		CALCARE attivo		%	2,4	*basso*
TESSITURA			FAS	*franco arg. sabbiosa*	SOSTANZA organica		%	1,84	*bassa*

ANALISI NUTRIENTI

Parametro			Valore	Giudizio	Parametro			Valore	Giudizio
AZOTO totale	(N)	%	0,119	*medio*	ZINCO	ass. (Zn)	ppm	2,4	*medio*
FOSFORO	ass. (P)	ppm	17	*medio*	CALCIO	scam.(Ca)	ppm	2650	*m. alto*
FERRO	ass. (Fe)	ppm	16,0	*medio*	MAGNESIO	scam.(Mg)	ppm	420	*m. alto*
MANGANESE	ass. (Mn)	ppm	18,0	*medio*	POTASSIO	scam. (K)	ppm	340	*m. alto*
RAME	ass. (Cu)	ppm	4,6	*medio*	SODIO	scam.(Na)	ppm	60	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr		Saturazione %	Giudizio
C.S.C.	meq	17,88		*media*
CALCIO	meq	13,25	74,0	*alta*
MAGNESIO	meq	3,50	19,6	*m. alta*
POTASSIO	meq	0,87	4,9	*media*
SODIO	meq	0,26	1,5	*normale*
SATURAZIONE BASICA			100,0	*alta*
RAPPORTO Mg/K		4,02		*medio*

Nutritional balance

FARMER		**CARRINO**
CROP		Citrus
CV		**clementine**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	141,77
	P	11,64
	K	53,66
	Ca	168,08
	Mg	13,41
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	69,18
	P	10,31
	K	134,45
	Ca	427,61
	Mg	121,61
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**72,59**
	P	**1,33**
	K	**-80,79**
	Ca	**-259,53**
	Mg	**-108,19**

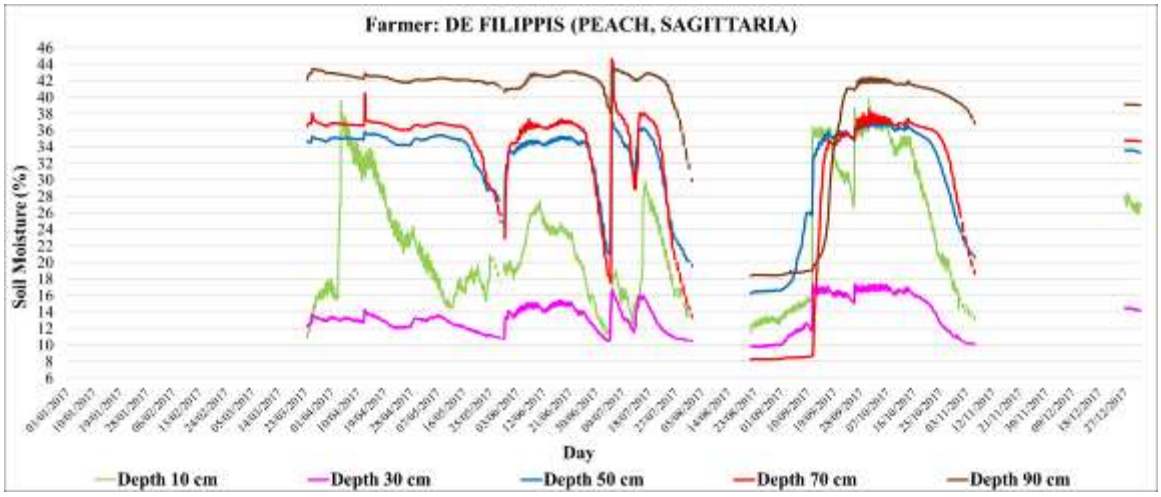
3.1.2.5. Farm 05 – 33 – Peach – SAGITTARIA - De Filippis

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Demo 21/04/2017 Control 03/05/2017	LAI by summer pruning biomass weight and calculation	Control and demo
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff	Not applicable	Not applicable	Not applicable
Biomass from pruning	20/02/2017	Weight	Demo parcel
Biomass from weed mowing			
Biomass from thinning	13/04/2017	Weight	Demo parcel
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in the field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-30 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer (10-30cm).

The images above report the installation of soil moisture probes.

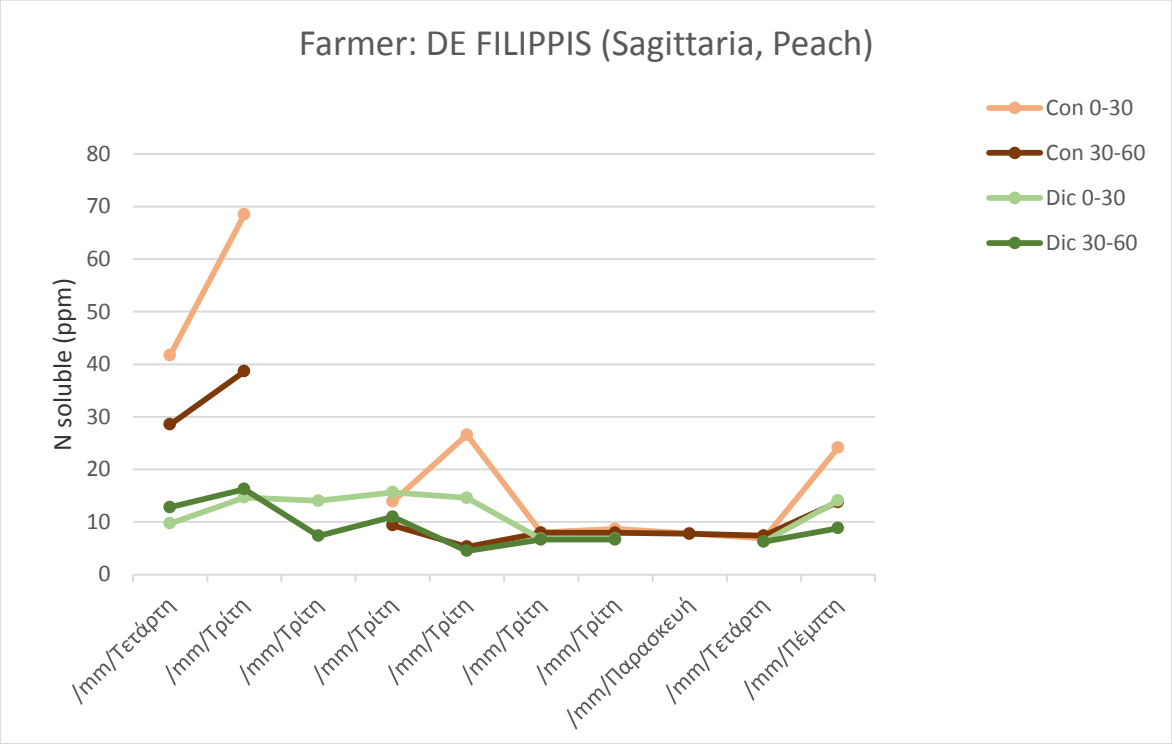
Recording of leaf area index (LAI)

FARMER	CROP	$LAI_{watersprouts}$ [m^2 $plant^{-1}$]
DE FILIPPIS	Peach	2.15

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
DE FILIPPIS	Peach	6525,67	6294,00

Nitrate soil content

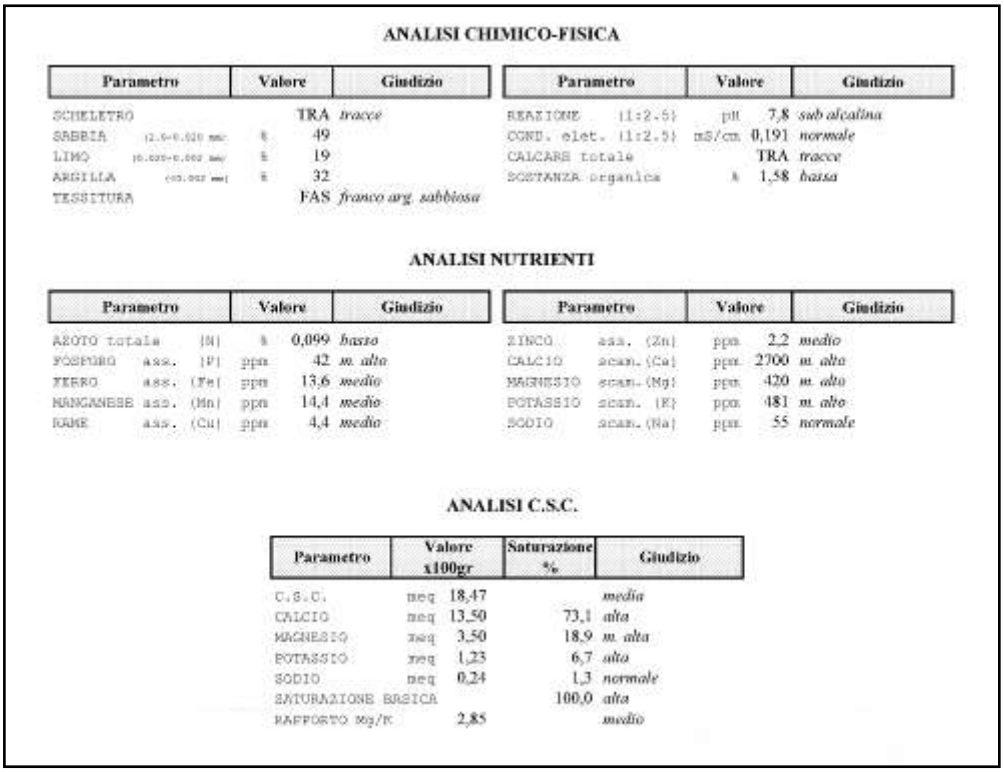


The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
DE FILIPPIS	Peach	28000,00	28000,00

Soil sampling and analyses



ANALISI CHIMICO-FISICA

Parametro	Valore	Giudizio
SCHELETRO	TRA	*tracce*
SABBIA	49	
LIMO	19	
ARGILLA	32	
TESSITURA	FAS	*franco arg. sabbiosa*

Parametro	Valore	Giudizio
REAZIONE (1:2.5)	pH 7,8	*sub alcalina*
COND. elet. (1:2.5)	mS/cm 0,191	*normale*
CALCARE totale	TRA	*tracce*
SOSTANZA organica	% 1,58	*bassa*

ANALISI NUTRIENTI

Parametro	Valore	Giudizio
AZOTO totale (N)	% 0,099	*basso*
FOSFORO ass. (P)	ppm 42	*m. alta*
FERRO ass. (Fe)	ppm 13,6	*medio*
MANGANESE ass. (Mn)	ppm 14,4	*medio*
RAME ass. (Cu)	ppm 4,4	*medio*

Parametro	Valore	Giudizio
ZINCO ass. (Zn)	ppm 2,2	*medio*
CALCIO scam. (Ca)	ppm 2700	*m. alta*
MAGNESIO scam. (Mg)	ppm 420	*m. alta*
POTASSIO scam. (K)	ppm 481	*m. alta*
SODIO scam. (Na)	ppm 55	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq 18,47		*media*
CALCIO	meq 13,50	73,1	*alta*
MAGNESIO	meq 3,50	18,9	*m. alta*
POTASSIO	meq 1,23	6,7	*alta*
SODIO	meq 0,24	1,3	*normale*
SATURAZIONE BASICA		100,0	*alta*
RAPPORTO Mg/K	2,85		*medio*

Biomass from pruning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from pruning	20/02/2017	0.65
Biomass from pruning	20/02/2017	0.868

The image above report the biomass from pruning.

Biomass from thinning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from thinning	13/04/2017	0.232

Nutritional balance

FARMER		**DEFILIPPIS**
CROP		PEACH
CV		**Sagittaria**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	170,49
	P	16,75
	K	163,89
	Ca	107,40
	Mg	20,35
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	84,80
	P	10,19
	K	127,18
	Ca	361,48
	Mg	96,09
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**85,69**
	P	**6,56**
	K	**36,71**
	Ca	**-254,07**
	Mg	**-75,74**

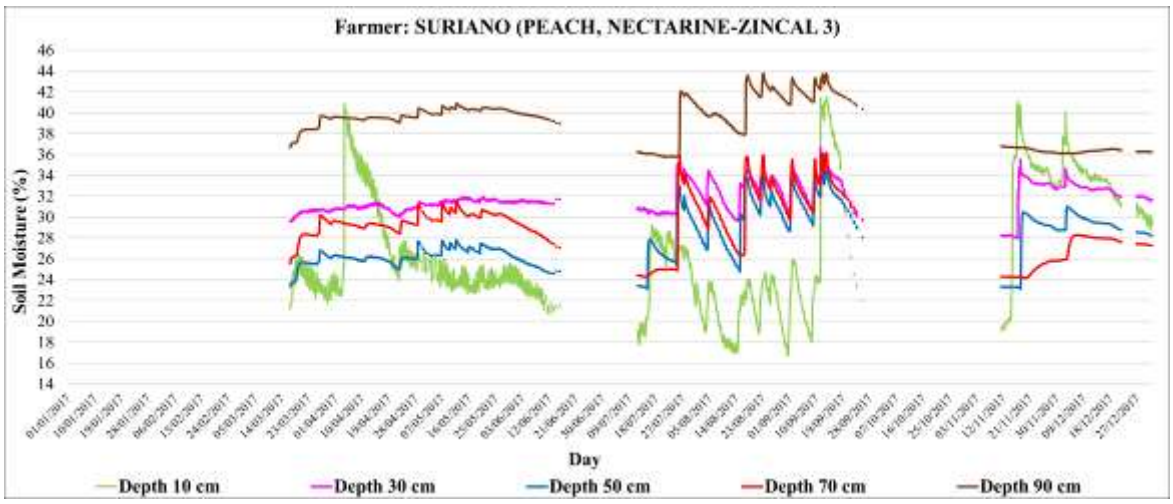
3.1.2.6. Farm 06 – 19.1 – Peach - ZINCAL 3 - Suriano Frutta

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part**.**

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Demo 20/04/2017 – 01/07/2017 Control 01/05/2017 – 15/07/2017	LAI by summer pruning biomass weight and calculation	Control and demo
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning			
Biomass from weed mowing			
Biomass from thinning	13/04/2017	Weight	Demo parcel
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-30 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer (10-30cm).

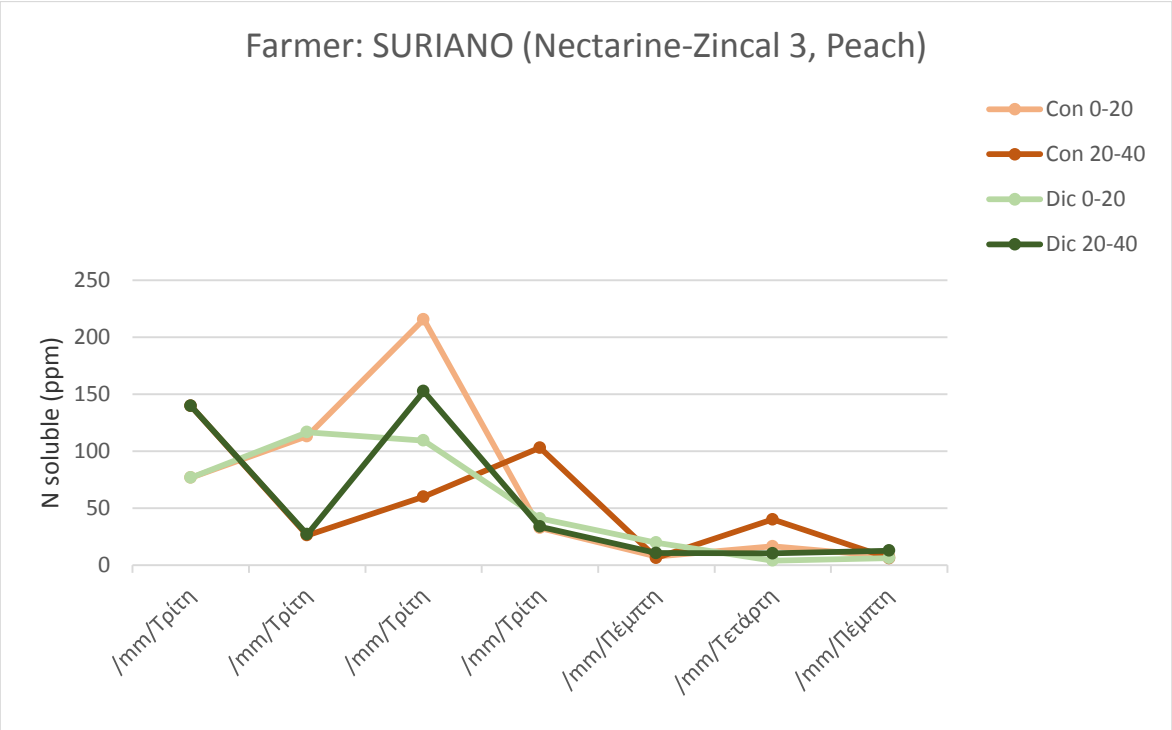
Recording of leaf area index (LAI)

FARMER	CROP	$LAI_{watersprouts}$ [m^2 $plant^{-1}$]
SURIANO Z3	Peach	2.31

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
SURIANO Z3	Peach	6183,00	4353,00

Nitrate soil content



The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
SURIANO Z3	Peach	13000,00	13000,00

Soil sampling and analyses

ANALISI CHIMICO-FISICA

Parametro		Valore	Giudizio
SCHELETRO		TRS	*trascurabile*
SABBIA	(2.0-0.020 mm) %	32	
LIMO	(0.020-0.002 mm) %	37	
ARGILLA	(<0.002 mm) %	31	
TESSITURA		FA	*franco argillosa*

Parametro		Valore	Giudizio
REAZIONE	(1:2.5) pH	7,8	*sub alcalina*
COND. elet.	(1:2.5) mS/cm	0,363	*normale*
CALCARE totale	%	29,6	*m. calcareo*
CALCARE attivo	%	9,6	*medio*
SOSTANZA organica	%	1,31	*bassa*

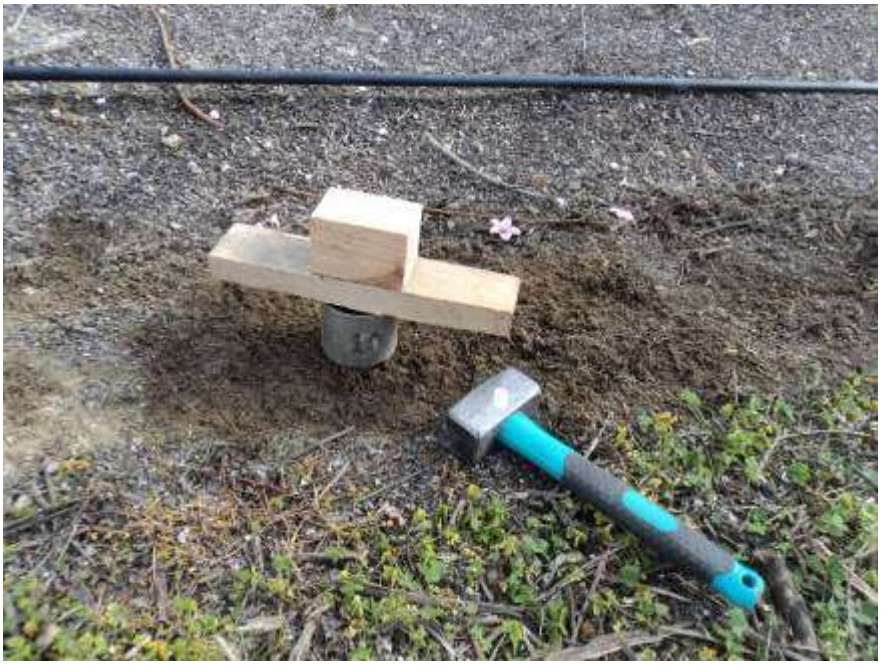
ANALISI NUTRIENTI

Parametro		Valore	Giudizio
AZOTO totale	(N) %	0,087	*basso*
FOSFORO	ass. (P) ppm	11	*basso*
FERRO	ass. (Fe) ppm	10,8	*medio*
MANGANESE	ass. (Mn) ppm	12,0	*medio*
RAME	ass. (Cu) ppm	1,8	*medio*

Parametro		Valore	Giudizio
ZINCO	ass. (Zn) ppm	0,8	*basso*
CALCIO	scam. (Ca) ppm	3250	*m. alto*
MAGNESIO	scam. (Mg) ppm	380	*m. alto*
POTASSIO	scam. (K) ppm	301	*m. alto*
SODIO	scam. (Na) ppm	48	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq 20,40		*alta*
CALCIO	meq 16,25	79,7	*alta*
MAGNESIO	meq 3,17	15,5	*m. alta*
POTASSIO	meq 0,77	3,8	*media*
SODIO	meq 0,21	1,0	*normale*
SATURAZIONE BASICA		100,0	*alta*
RAPPORTO Mg/K	4,12		*medio*



The images above report some operations related soil sampling.

Biomass from thinning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from thinning	13/04/2017	0.158

Nutritional balance

FARMER		Suriano Frutta
CROP		PEACH
CV		**Zincal 3**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	110,04
	P	13,86
	K	103,60
	Ca	124,25
	Mg	16,87
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	74,72
	P	10,19
	K	127,18
	Ca	361,48
	Mg	96,09
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**35,32**
	P	**3,67**
	K	**-23,58**
	Ca	**-237,22**
	Mg	**-79,23**

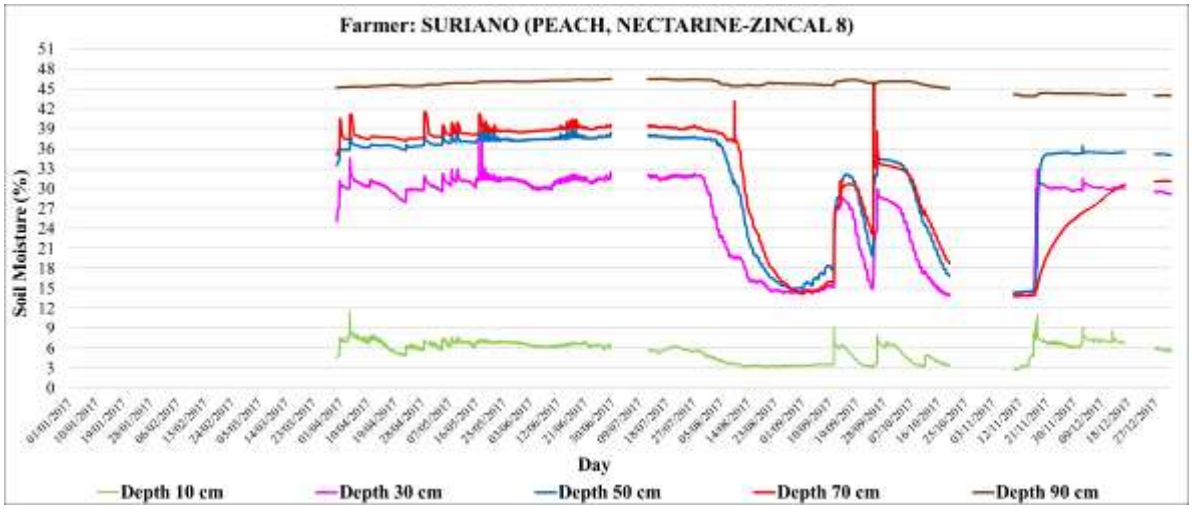
3.1.2.7. Farm 07 – 19.2 – Peach - ZINCAL 8 - Suriano Frutta

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Demo 21/04/2017 Control 04/05/2017	LAI by summer pruning biomass weight and calculation	Control and demo
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning			
Biomass from weed mowing			
Biomass from thinning	13/04/2017	Weight	Demo parcel
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



The trend of soil moisture at different depths was assessed by probes installed in the field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-30 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer (10-30cm).

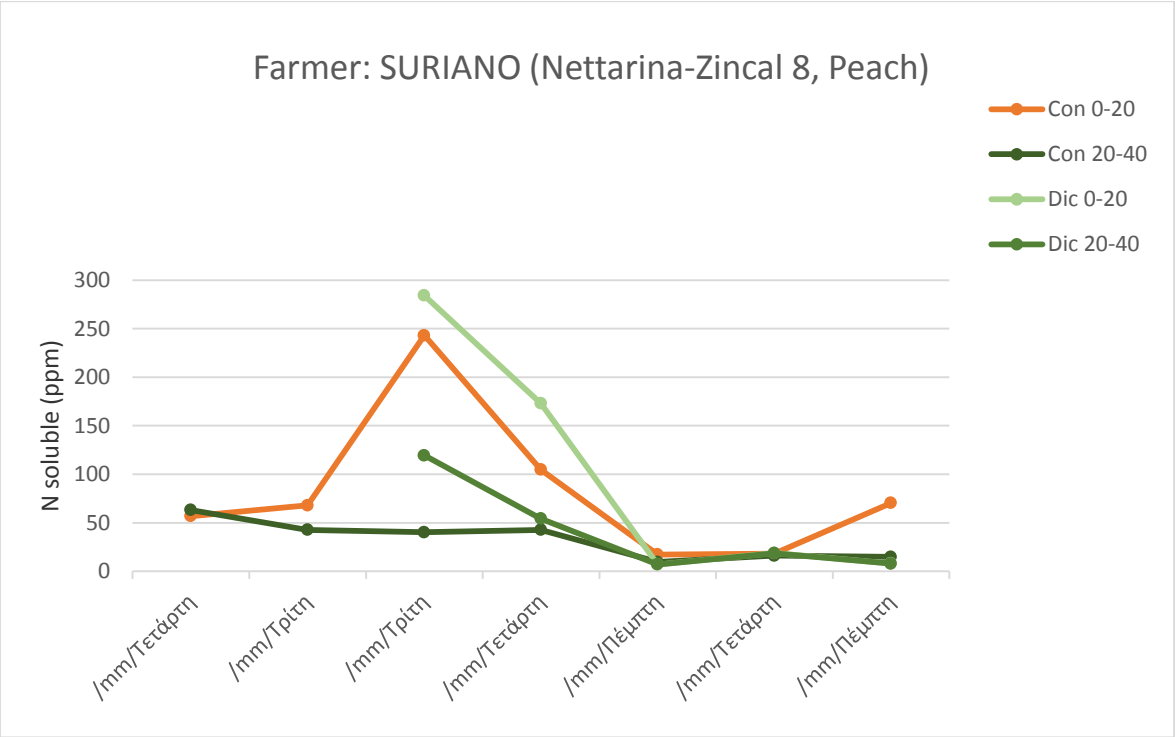
Recording of leaf area index (LAI)

FARMER	CROP	$LAI_{watersprouts}$ [m^2 $plant^{-1}$]
SURIANO Z8	Peach	2.3

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
SURIANO Z8	Peach	8064,93	4324,64

Nitrate soil content



The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
SURIANO Z8	Peach	10000,00	10000,00

Biomass from thinning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from thinning	13/04/2017	0.094

Soil sampling and analyses

ANALISI CHIMICO-FISICA

Parametro	Valore		Giudizio	Parametro	Valore		Giudizio
SCHELETRO		SEN	*sensibile*	REAZIONE (1:2.5)	pH	7,7	*sub alcalina*
SABBIA (2.0-0.020 mm)	%	42		COND. elet. (1:2.5)	mS/cm	0,388	*normale*
LIMO (0.020-0.002 mm)	%	24		CALCARE totale	%	16,1	*med. calcareo*
ARGILLA (<0.002 mm)	%	34		CALCARE attivo	%	4,6	*basso*
TESSITURA		FA	*franco argillosa*	SOSTANZA organica	%	1,45	*bassa*

ANALISI NUTRIENTI

Parametro	Valore		Giudizio	Parametro	Valore		Giudizio
AZOTO totale (N)	%	0,092	*basso*	ZINCO ass. (Zn)	ppm	1,2	*medio*
FOSFORO ass. (P)	ppm	22	*alto*	CALCIO scam. (Ca)	ppm	3550	*m. alto*
FERRO ass. (Fe)	ppm	11,4	*medio*	MAGNESIO scam. (Mg)	ppm	400	*m. alto*
MANGANESE ass. (Mn)	ppm	13,0	*medio*	POTASSIO scam. (K)	ppm	360	*m. alto*
RAME ass. (Cu)	ppm	1,7	*medio*	SODIO scam. (Na)	ppm	51	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr		Saturazione %	Giudizio
C.S.C.	meq	22,22		*alta*
CALCIO	meq	17,75	79,9	*alta*
MAGNESIO	meq	3,33	15,0	*alta*
POTASSIO	meq	0,92	4,1	*media*
SODIO	meq	0,22	1,0	*normale*
SATURAZIONE BASICA			100,0	*alta*
RAPPORTO Mg/K		3,62		*medio*

Nutritional balance

FARMER		**Suriano Frutta**
CROP		PEACH
CV		**Zincal 8**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	98,34
	P	13,00
	K	92,35
	Ca	123,62
	Mg	16,06
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	74,72
	P	10,19
	K	127,18
	Ca	361,48
	Mg	96,09
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**23,62**
	P	**2,81**
	K	**-34,83**
	Ca	**-237,85**
	Mg	**-80,04**

3.1.2.8. Farm 08 – 30 – Olive – OGLIAROLA – Bonfiglio

General farm overview

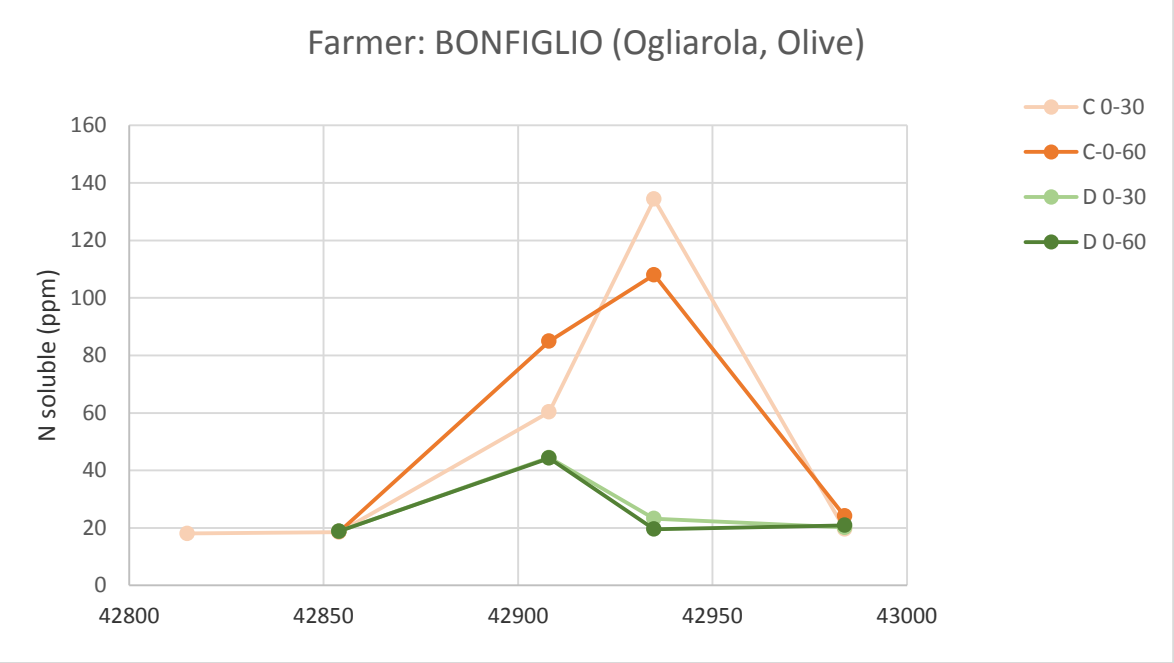
List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture			
Recording of leaf area index (LAI)	Not applicable	Not applicable	Not applicable
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses			
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	For this farme yield was estimated		Control and Demo parcels
Recording and analyses of surface runoff samples	Not applicable	Not applicable	Not applicable
Biomass from pruning	13/04/2017	Weight	Demo parcel
Biomass from weed mowing			
Biomass from thinning			
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
BONFIGLIO	Olive	500,00	1500,00

Nitrate soil content



The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
BONFIGLIO	Olive	3500,00	3500,00

Soil sampling and analyses

ANALISI CHIMICO-FISICA

Parametro			Valore	Giudizio	Parametro			Valore	Giudizio
SCHELETRO			SEN	*sensibile*	REAZIONE	(1:2.5)	pH	7,6	*sub alcalina*
SABBIA		%	53		COND. elet.	(1:2.5)	mS/cm	0,741	*leg. alta*
LIMO		%	25		CALCARE totale		%	33,5	*m. calcareo*
ARGILLA		%	22		CALCARE attivo		%	6,4	*medio*
TESSITURA			FAS	*franco arg. sabbiosa*	SOSTANZA organica		%	1,38	*bassa*

ANALISI NUTRIENTI

Parametro			Valore	Giudizio	Parametro			Valore	Giudizio
AZOTO totale	(N)	%	0,088	*basso*	ZINCO	ass. (Zn)	ppm	0,1	*m.basso*
FOSFORO	ass. (P)	ppm	4	*m. basso*	CALCIO	scam. (Ca)	ppm	3100	*m. alto*
FERRO	ass. (Fe)	ppm	8,0	*medio*	MAGNESIO	scam. (Mg)	ppm	220	*m. alto*
MANGANESE	ass. (Mn)	ppm	8,2	*medio*	POTASSIO	scam. (K)	ppm	133	*medio*
RAME	ass. (Cu)	ppm	2,8	*medio*	SODIO	scam. (Na)	ppm	25	*normale*

ANALISI C.S.C.

Parametro		Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq	17,78		*media*
CALCIO	meq	15,50	87,2	*alta*
MAGNESIO	meq	1,83	10,3	*alta*
POTASSIO	meq	0,34	1,9	*bassa*
SODIO	meq	0,11	0,6	*normale*
SATURAZIONE BASICA			100,0	*alta*
RAPPORTO Mg/K		5,38		*alto*

Biomass from pruning (Demonstration parcel)

Practice	Date	Sample Dry Weight (kg/plant)
Biomass from pruning	13/04/2017	0.302
Biomass from pruning	13/04/2017	0.1176
Biomass from pruning	13/04/2017	0.1116


1 cm < Ø < 3 cm


Ø > 3 cm

The images above report the biomass from pruning.

Nutritional balance

FARMER		**BONFIGLIO**
CROP		OLIVE
CV		**ogliarola**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	28,14
	P	5,43
	K	26,32
	Ca	60,12
	Mg	8,54
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	68,69
	P	9,99
	K	115,05
	Ca	251,25
	Mg	53,57
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**-40,55**
	P	**-4,56**
	K	**-88,73**
	Ca	**-191,13**
	Mg	**-45,03**

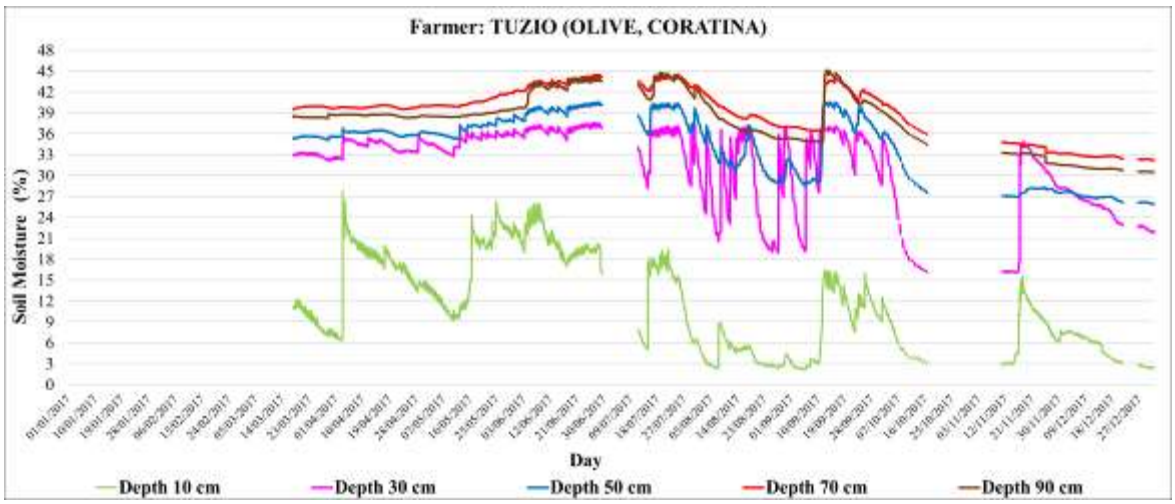
3.1.2.9. Farm 09 – 24.1 – Olive – OGLIAROLA – Tuzio

General farm overview

List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	CONTINUOS	Soil moisture sensor	Demo parcel
Recording of leaf area index (LAI)	Not applicable	Not applicable	Not applicable
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses		Lab analysis	
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use		Water meter reads	
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	15-16/09/2017	Rainfall simulator	Control and demo
Biomass from pruning			
Biomass from weed mowing			
Biomass from thinning			
Irrigation water analysis			
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of soil moisture



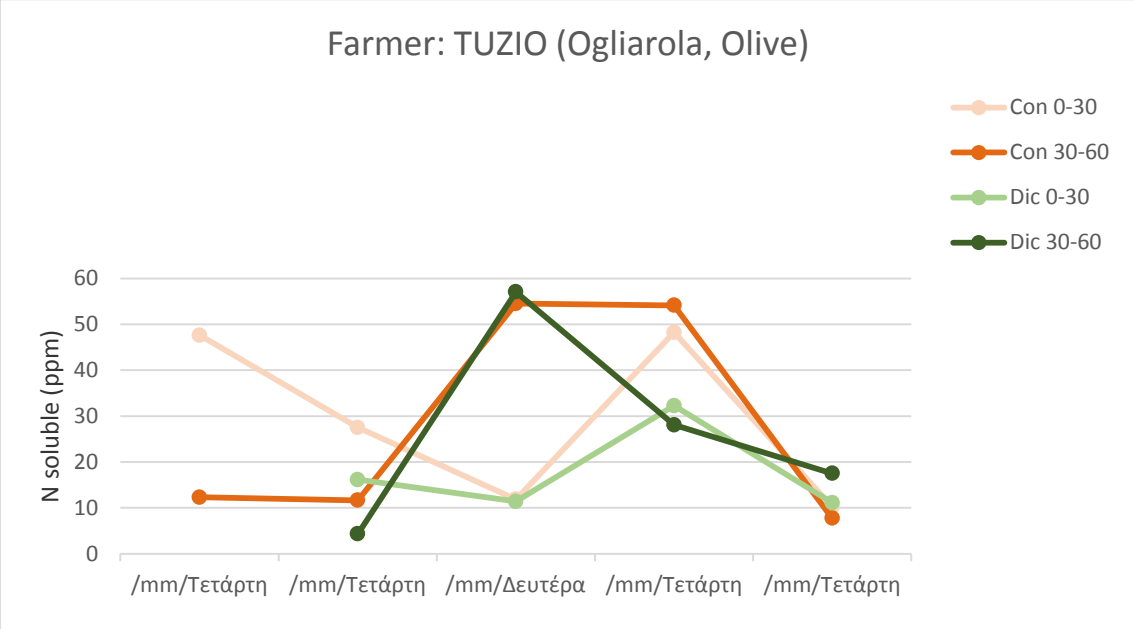
The trend of soil moisture at different depths was assessed by probes installed in field. Data observation shows higher soil moisture fluctuations for the first layer of soil (10-30 cm) since it can be considered the area where irrigation, plant uptake and soil evaporation are the most affecting factors. Water balance calculation was based on the values recorded for the first soil layer (10-30cm).

The images above report the installation of soil moisture probes.

Recording of irrigation water use

FARMER	CROP	Irrigated	
		TRADITIONAL	DEMONSTRATION
		IR = annual irrigation records [m3]	IR = annual irrigation records [m3]
TUZIO	Olive	2000,00	2000,00

Nitrate soil content



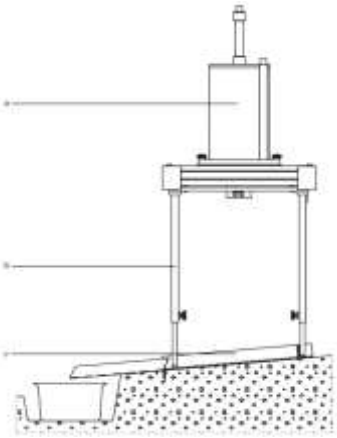
The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

FARMER	CROP	Irrigated	
		WUE [kg m-3]	
		TRADITIONAL	DEMONSTRATION
		Y = yield [kg ha-1]	Y = yield [kg ha-1]
TUZIO	Olive	12000,00	12000,00

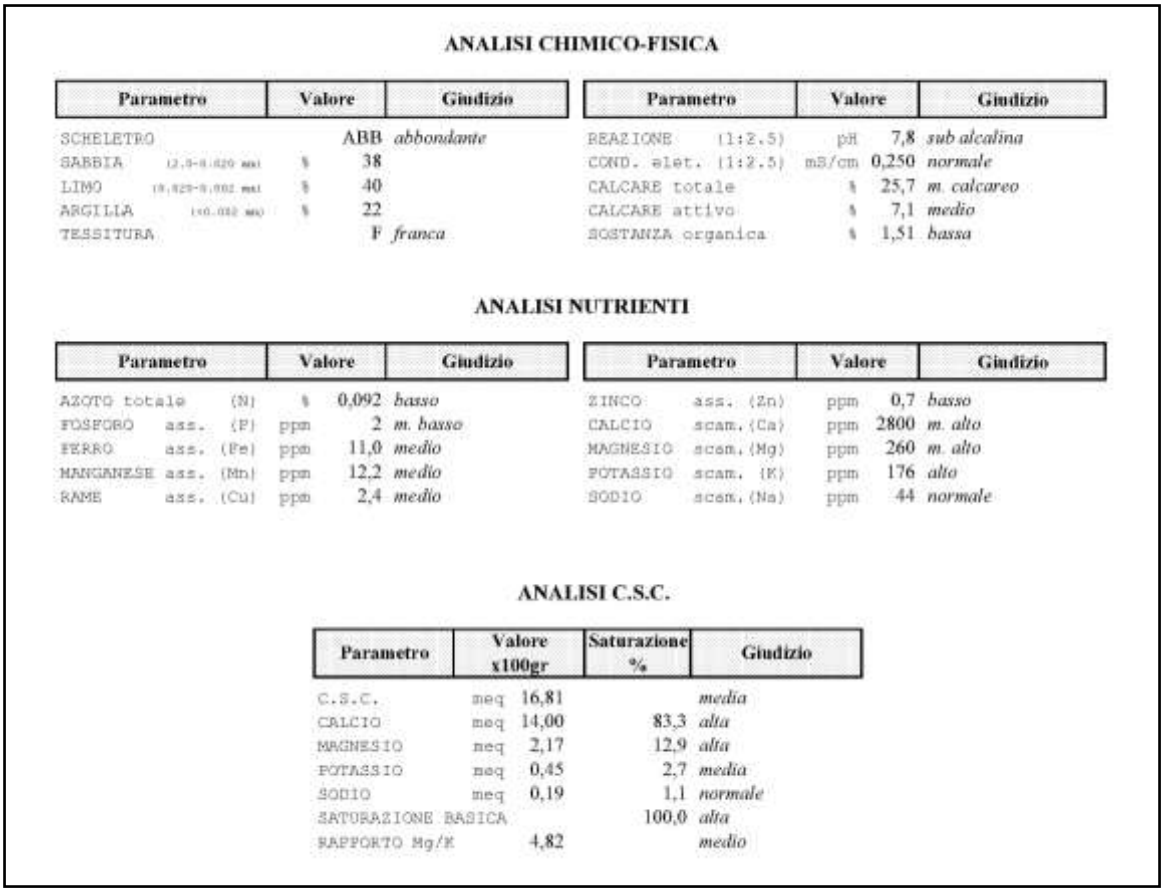
Recording and analyses of surface runoff samples

A small drip-type rainfall simulator was used in field. The simulator was produced by Eijkelkamp (Eijkelkamp Agrisearch Equipment, The Netherlands) and is owned by Wageningen University and its Research Centre. The simulator is an unpressurised drip-type simulator. The horizontal surface area is 0.25_0.25m (totalling 0.0625m2) and the simulator stands on an aluminium frame 0.40m above the ground. It consists of a plastic water reservoir of approximately 2.4L. The bottom of the reservoir is square shaped and over 0.25 x 0.25m there are 49 straight capillary tubes with a diameter of 1mm that are in open contact with the water in the reservoir and the outside atmosphere below it. The discharge rate of the capillary tubes is determined by the length and diameter of the tubes. These cannot be altered; the simulator is intended for a fixed discharge rate. Kamphorst (1987) has set this rate at 6mm min–1, or 360mmh–1 for all tubes combined. The diameter of the drops is 5.9 mm, the mass of the drops is 0.106 g and the average fall height is 0.40 m.
Three measures were taken in different areas of the field but with similar slope (~2%) for control and demo part;



	Tuzio	
	Runoff [ml]	
	Control	Demonstration
1	0,27	0,79
2	0,35	0,60
3	1,06	0,17
Mean	**0,56**	**0,52**

soil sampling and analyses



ANALISI CHIMICO-FISICA

Parametro			Valore	Giudizio
SCHELETRO			ABB	*abbondante*
SABBIA	(2,0-0,020 mm)	%	38	
LIMO	(0,020-0,002 mm)	%	40	
ARGILLA	(<0,002 mm)	%	22	
TESSITURA			F	*franca*

Parametro			Valore	Giudizio
REAZIONE	(1:2,5)	pH	7,8	*sub alcalina*
COND. elet.	(1:2,5)	mS/cm	0,250	*normale*
CALCARE totale		%	25,7	*m. calcareo*
CALCARE attivo		%	7,1	*medio*
SOSTANZA organica		%	1,51	*bassa*

ANALISI NUTRIENTI

Parametro			Valore	Giudizio
AZOTO totale	(N)	%	0,092	*basso*
FOSFORO	ass. (P)	ppm	2	*m. basso*
FERRO	ass. (Fe)	ppm	11,0	*medio*
MANGANESE	ass. (Mn)	ppm	12,2	*medio*
RAME	ass. (Cu)	ppm	2,4	*medio*

Parametro			Valore	Giudizio
ZINCO	ass. (Zn)	ppm	0,7	*basso*
CALCIO	scam. (Ca)	ppm	2800	*m. alto*
MAGNESIO	scam. (Mg)	ppm	260	*m. alto*
POTASSIO	scam. (K)	ppm	176	*alto*
SODIO	scam. (Na)	ppm	44	*normale*

ANALISI C.S.C.

Parametro		Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq	16,81		*media*
CALCIO	meq	14,00	83,3	*alta*
MAGNESIO	meq	2,17	12,9	*alta*
POTASSIO	meq	0,45	2,7	*media*
SODIO	meq	0,19	1,1	*normale*
SATURAZIONE BASICA			100,0	*alta*
RAPPORTO Mg/K		4,82		*medio*

Nutritional balance

FARMER		**TUZIO**
CROP		OLIVE
CV		**ogliarola**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	106,50
	P	43,85
	K	117,64
	Ca	43,15
	Mg	9,59
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	68,69
	P	9,99
	K	115,05
	Ca	251,25
	Mg	53,57
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	**N**	**37,82**
	P	**33,86**
	K	**2,58**
	Ca	**-208,11**
	Mg	**-43,98**

3.1.2.10. Farm 10 – 21.2 – Olive – OGLIAROLA – Fortunato

General farm overview

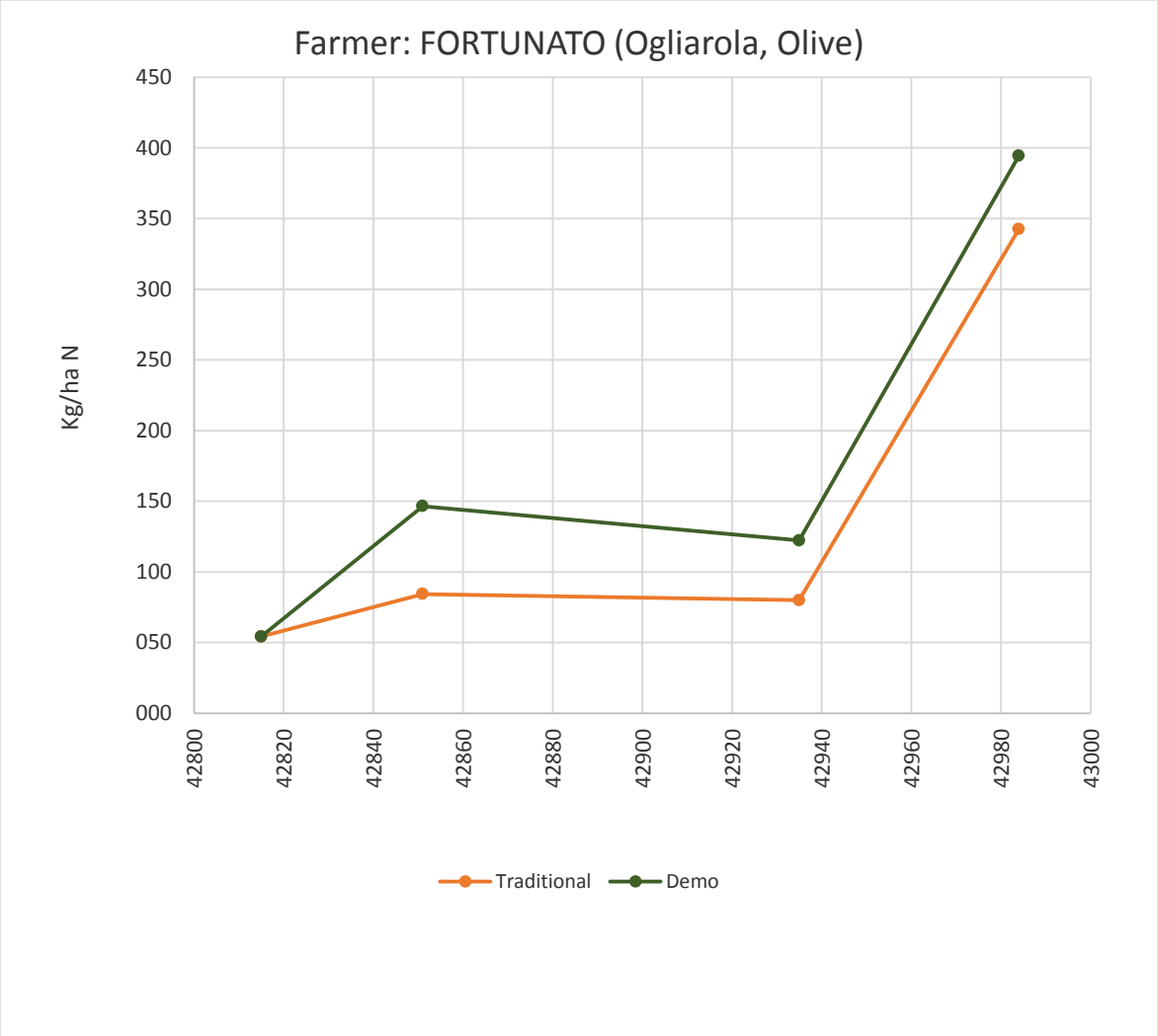
List of parameters, timing of collections, method of analysis monitored by UNIBAS in control and demo part.

Parameter	Timing of collections and measurements	Analysis	Control and/ or demo
Recording of applications			Control and Demo parcels
Recording of soil moisture	Not applicable	Not applicable	Not applicable
Recording of leaf area index (LAI)	Not applicable	Not applicable	Not applicable
Soil sampling and analyses	28/03/2017	Lab analysis	Control and Demo parcels
Leaf sampling and analyses		Lab analysis	
Nitrate soil content	CONTINUOS	Lab analysis	Control and Demo parcels
Recording of irrigation water use	Not applicable	Not applicable	Not applicable
Fruit yield	During harvest period	Weight	Control and demo
Recording and analyses of surface runoff samples	18-19/10/2017	Rainfall simulator	Control and demo
Biomass from pruning	26/04/2017	Weight	Demo parcel
Biomass from weed mowing			
Biomass from thinning			
Irrigation water analysis	Not applicable	Not applicable	Not applicable
Organic fertilizers analysis	28/05/217	Lab analysis	Compost analysis was carried out during the compost application period
Nutritional balance	CONTINUOS	Lab analysis	Demo parcel

Recording of irrigation water use

For farmer Fortunato, there is not irrigation volume recording because it is a rainfed field.

Nitrate soil content



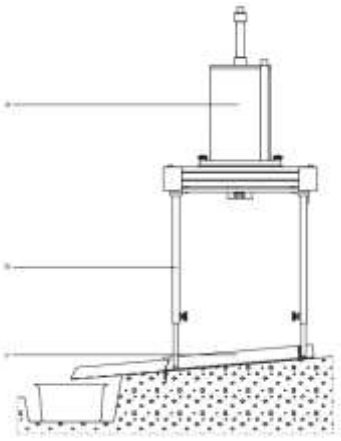
The trend of the graph shows the different values of N soluble in the soil at different depths throughout the season. The analysis were carried out both for the "demonstrative" parcel and for the control.

Fruit yield

		Rainfed	
FARMER	**CROP**	**WUE [kg m-3]**	
		TRADITIONAL	**DEMONSTRATION**
		Y = yield [kg ha-1]	**Y = yield [kg ha-1]**
FORTUNATO	Olive	3800,00	3400,00

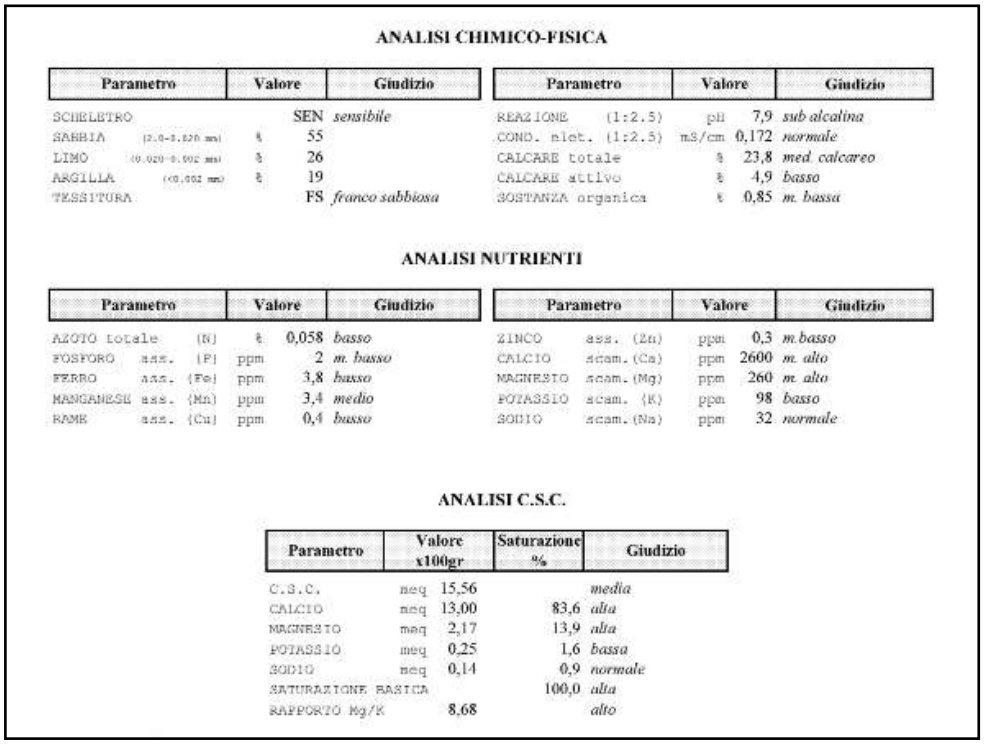
Recording and analyses of surface runoff samples

A small drip-type rainfall simulator was used in field. Three measures were taken in different areas of the field but with similar slope (~11%) for control and demo part;



	Fortunato	
	Runoff [ml]	
	Control	Demonstration
1	0.31	3.35
2	3.75	4.37
3	3.69	0.44
Mean	**2.58**	**2.72**

Soil sampling and analyses



ANALISI CHIMICO-FISICA

Parametro		Valore	Giudizio
SCHELETRO		SEN	*sensibile*
SABBIA	(2.0-0.020 mm)	% 55	
LIMO	(0.020-0.002 mm)	% 26	
ARGILLA	(<0.002 mm)	% 19	
TESSITURA		FS	*franco sabbiosa*

Parametro		Valore	Giudizio
REAZIONE	(1:2.5)	pH 7,9	*sub alcalina*
COND. elet.	(1:2.5)	mS/cm 0,172	*normale*
CALCARE totale		% 23,8	*med. calcareo*
CALCARE attivo		% 4,9	*basso*
SOSTANZA organica		% 0,85	*m. bassa*

ANALISI NUTRIENTI

Parametro		Valore	Giudizio
AZOTO totale	(N)	% 0,058	*basso*
FOSFORO ass.	(P)	ppm 2	*m. basso*
FERRO ass.	(Fe)	ppm 3,8	*basso*
MANGANESE ass.	(Mn)	ppm 3,4	*medio*
RAME ass.	(Cu)	ppm 0,4	*basso*

Parametro		Valore	Giudizio
ZINCO ass.	(Zn)	ppm 0,3	*m.basso*
CALCIO scam.	(Ca)	ppm 2600	*m. alto*
MAGNESIO scam.	(Mg)	ppm 260	*m. alto*
POTASSIO scam.	(K)	ppm 98	*basso*
SODIO scam.	(Na)	ppm 32	*normale*

ANALISI C.S.C.

Parametro	Valore x100gr	Saturazione %	Giudizio
C.S.C.	meq 15,56		*media*
CALCIO	meq 13,00	83,6	*alta*
MAGNESIO	meq 2,17	13,9	*alta*
POTASSIO	meq 0,25	1,6	*bassa*
SODIO	meq 0,14	0,9	*normale*
SATURAZIONE BASICA		100,0	*alta*
RAPPORTO Mg/K	8,68		*alto*

Biomass from pruning (Demonstration parcel)

Practice	Date	Sample Fresh Weight (kg/plant)
Biomass from pruning	26/04/2017	10.66
Biomass from pruning	26/04/2017	11.72
Biomass from pruning	26/04/2017	12.25

Nutritional balance

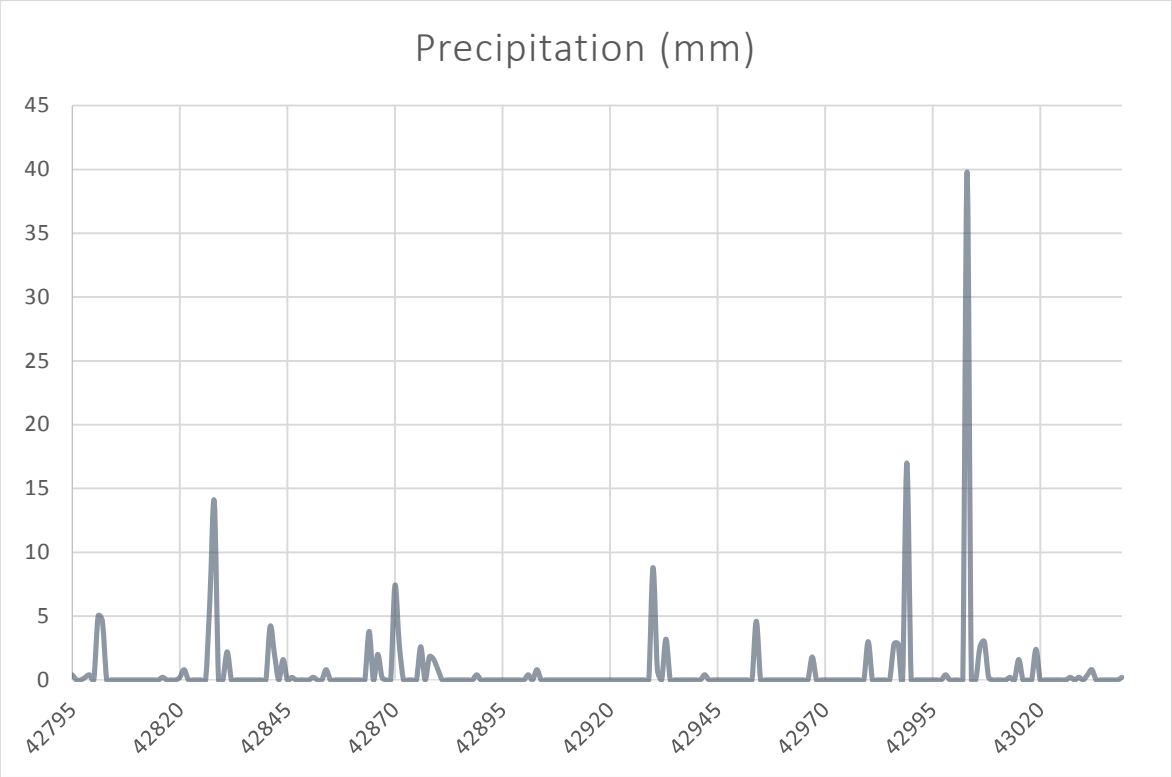
FARMER		**FORTUNATO**
CROP		OLIVE
CV		**ogliarola**
OUTPUT (fruit harvested and nutrients fixed in vegetable organs) (Kg/ha)	N	39,56
	P	13,69
	K	42,40
	Ca	42,74
	Mg	6,87
INPUT: O. M., Compost, Irrigation water (Kg/ha)	N	61,21
	P	9,79
	K	102,93
	Ca	141,03
	Mg	11,04

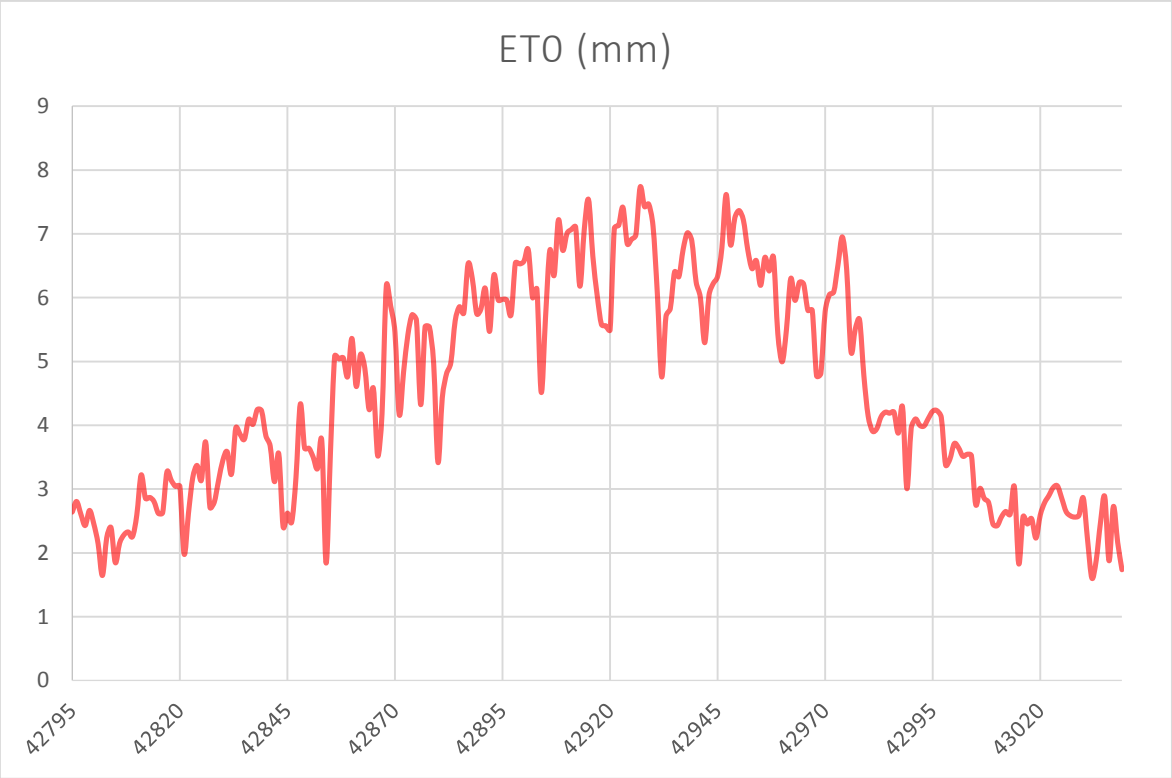
NUTRIENT BALANCE (quantities of nutrients to provide) (Kg/ha)	N	-21,66
	P	3,90
	K	-60,53
	Ca	-98,29
	Mg	-4,17

Monitoring of meteorological data

Weather station: COZZO DEL FICO – W.S. code MO4

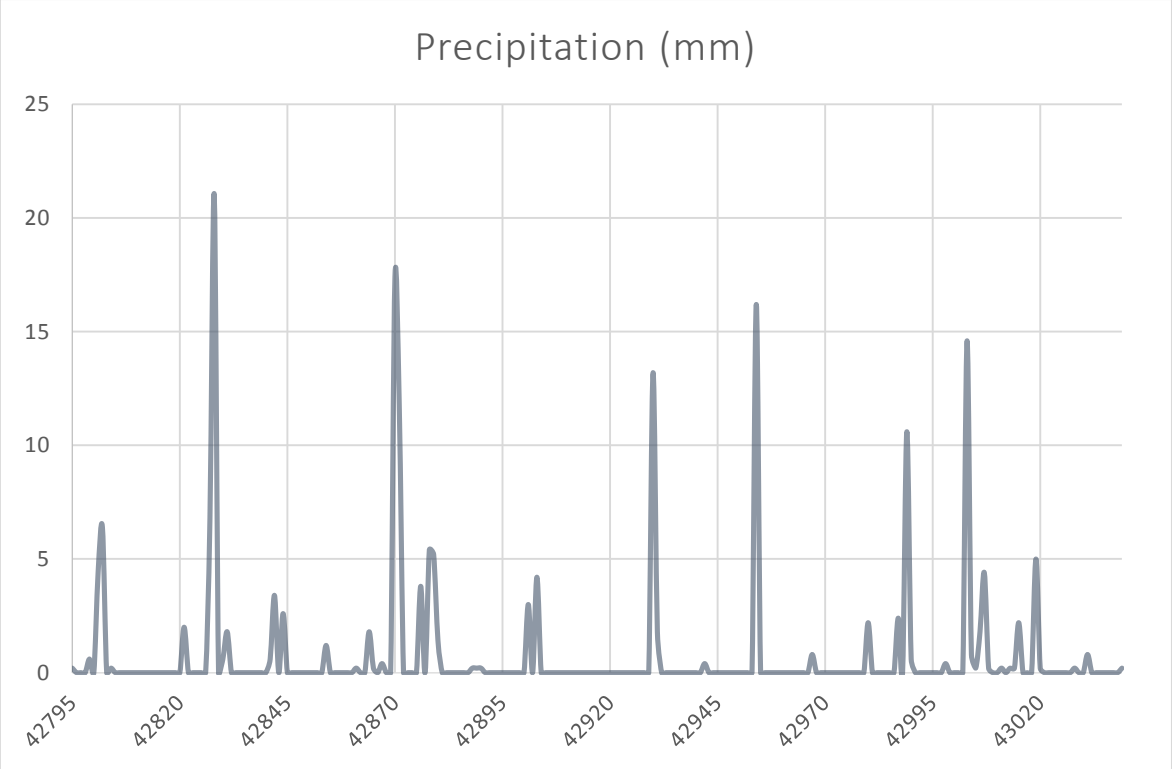
This weather station is used for monitoring meteorological data in pilot parcels: peach, apricot and citrus.

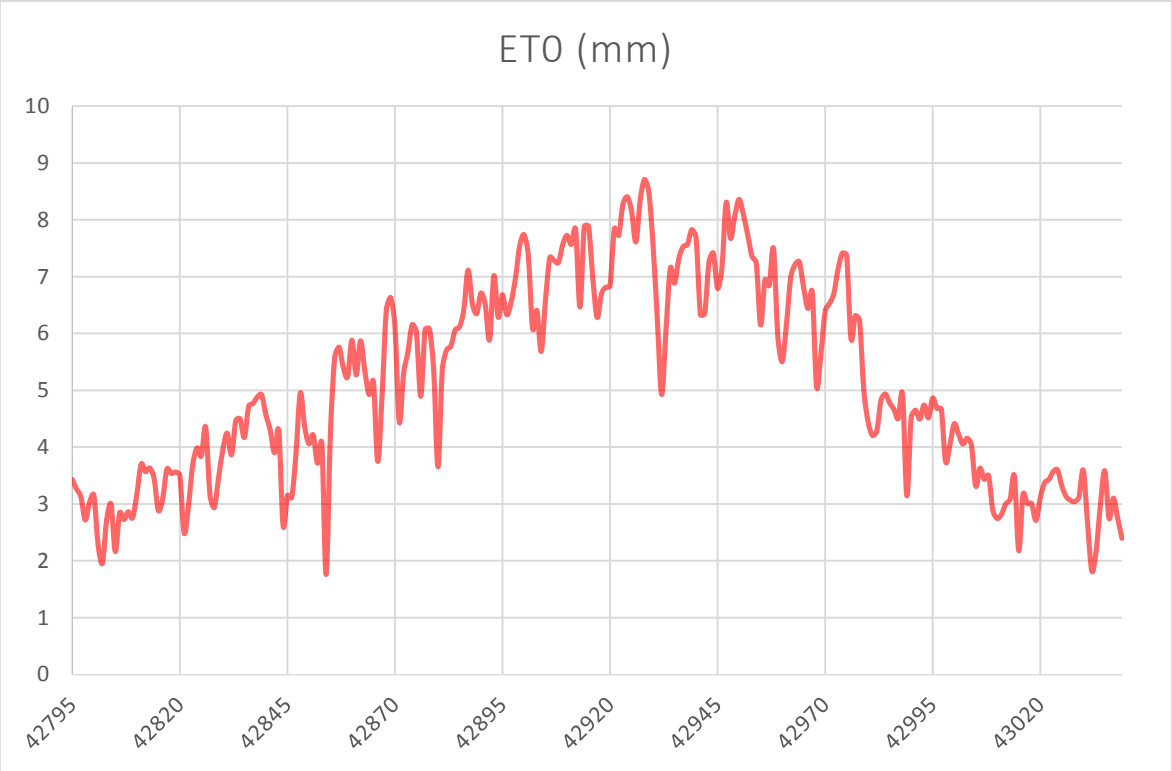




Weather station: S. DONATO - W.S. code MSD

This weather station is used for monitoring meteorological data in pilot parcels: olive.





Organic fertilizers analysis

Parameter	*Symbol*	*U.M.*	*Value*
Reaction (1:10)		pH	8
Electrical Conductivity (25 °C) (1:10)		mS/cm	5.72
Total Nitrogen	(N)	% s.s	2.41
Organic Nitrogen	(N)	% s.s	2.36
Organic Nitrogen / Total Nitrogen Ratio		%	98
Dry matter		%	65.3
Moisture		% s.t.q.	34.7
Organic Matter		% s.s	67
Organic Carbon		% s.s	38.8
C / N			16.2
Ashes		% s.s	33
Calcium	(CaO)	% s.s	12.2
Magnesium	(MgO)	% s.s	0.79
Sodium	(Na)	% s.s	0.7

Parameter	*Symbol Symbol*	*U.M.*	*Value*
Potassium	(K2O)	% s.s	2.41
Phosphorus	(P2O5)	% s.s	1.37
Iron	(Fe)	mg/kg	4500
Manganese	(Mn)	mg/kg	320
Copper	(Cu)	mg/kg	100
Zinc	(Zn)	mg/kg	170

Boron	(B)	mg/kg	44
Lead	(Pb)	mg/kg	30
Chrome	(Cr)	mg/kg	16
Cadmium	(Cd)	mg/kg	0.32
Nickel	(Ni)	mg/kg	9
Arsenic	(As)	mg/kg	0.44
Mercury	(Hg)	mg/kg	<0.1
Chrome VI	(Cr)	mg/kg	<0.1

Irrigation water analysis

Data inizio analisi: 14/03/16 Data fine analisi: 16/03/16

ANALISI ACQUA USO IRRIGUO

Determinazioni Chimico-Fisiche		Unità Misura	Valori	Inc. di Misura Estesa	Metodica di Riferimento
Durezza Totale		°F	18		APAT CNR IRSA 2040 B Man 29/2003
pH		unità di pH	8,07	± 0,30	APAT CNR IRSA 2060 Man 29/2003
Conducibilità elettrica a 20°C		µS/cm	409	± 14	APAT CNR IRSA 2030 Man 29/2003
Residuo fisso a 180 °C		mg/l	286		APAT CNR IRSA 2090 A Man 29/2003
MACROELEMENTI					
Potassio	(K^+)	mg/l	2,2		APAT CNR IRSA 3240 A Man 29/2003
Sodio	(Na^+)	mg/l	9,9		APAT CNR IRSA 3270 A Man 29/2003
Calcio	(Ca^{2+})	mg/l	40,1		APAT CNR IRSA 3130 A Man 29/2003
Magnesio	(Mg^{2+})	mg/l	20,7		APAT CNR IRSA 3180 A Man 29/2003
Alcalinità M	(HCO_3^-)	mg/l	220		APAT CNR IRSA 2010 Man 29/2003
Alcalinità P	($CO3^{2-}$)	mg/l	<5		APAT CNR IRSA 2010 Man 29/2003
Cloruri	(Cl^-)	mg/l	8,0		APAT CNR IRSA 4090 A2 Man 29/2003
Solfati	(SO_4^{2-})	mg/l	41,5		APAT CNR IRSA 4140 B Man 29/2003
Fosfati solubili	($H_2PO_4^-$)	mg/l	<0,05		APAT CNR IRSA 4110 A1 Man 29/2003
Ammonio	(NH_4^+)	mg/l	<0,2		APAT CNR IRSA 4030 Man 29/2003
Nitrati	(NO_3^-)	mg/l	3,23		APAT CNR IRSA 4040 Man 29/2003
Nitriti	(NO_2^-)	mg/l	<0,01		APAT CNR IRSA 4150 Man 29/2003
MICROELEMENTI					
Ferro totale	(Fe^{2+})	mg/l	0,06		APAT CNR IRSA 3160 A Man 29/2003
Manganese	(Mn^{2+})	mg/l	<0,01		APAT CNR IRSA 3190 A Man 29/2003
Zinco	(Zn^{2+})	mg/l	0,05		APAT CNR IRSA 3320 A Man 29/2003
Boro	(B^{+3})	mg/l	<0,1		APAT CNR IRSA 3110 Man 29/2003
Rame	(Cu^{2+})	mg/l	<0,1		APAT CNR IRSA 3250 A Man 29/2003
RAPPORTO ASSORBIMENTO SODICO (SAR)					
S.A.R. Integrato					0,60
S.A.R. Semplice					0,32
CARBONATI E BICARBONATI DI SODIO RESIDUI (RSC)					
R.S.C.		meq/l			-0,10
PROBABILE SODIO SCAMBIABILE NEL TERRENO (ESP)					
E.S.P.		meq/l			-0,80

NOTE

Durezza Acqua (°F) 1 °F = 10 mg di $CaCO_3$/l

<5 dolce 5 - 12 ideale 12 - 25 mediamente dure 25 - 38 dura >38 molto dura

Reazione pH

Anomale per l'irrigazione sono da considerarsi acque con pH minore di 5 o maggiore di 9

Salinità (conducibilità)

0-500 µS/cm *Lisciviazione del suolo;* 500-2250 µS/cm *Normale;* >2250 µS/cm *Salmastra.*

Le determinazioni degli elementi metallici sono state eseguite con la Spettrofotometria in assorbimento atomico, utilizzando le metodiche ufficiali vigenti. I risultati analitici si riferiscono al campione analizzato

rapporto di prova: 2016417

VALUTAZIONI SULLE CARATTERISTICHE DELL'ACQUA

TOSSICITÀ SPECIFICA DEGLI IONI			Valori medi	Giudizio (*)
S.A.R. Integrato :	0,6	Irrigazione sotto chioma	(<6)	Nessuna
Sodio (Na^+) :	9,9	Irrigazione sopra chioma	(<46 ppm)	Nessuna
Cloruri (Cl^-) :	8,0	Irrigazione sotto chioma	(<140 ppm)	Nessuna
		Irrigazione sopra chioma	(<105 ppm)	Nessuna
Solfati ($SO4^{2-}$) :	41,5	Irrigazione sotto chioma	(<2400 ppm)	Nessuna
		Irrigazione sopra chioma	(<96 ppm)	Nessuna
Boro (B^{+3}) :	<0,1	Irrigazione sotto chioma	(<1 ppm)	Nessuna
		Irrigazione sopra chioma	(<0,5 ppm)	Nessuna
Ferro (Fe^{2+}) :	0,06		(<5 ppm)	Nessuna
Manganese (Mn^{2+}) :	<0,01		(<0,5 ppm)	Nessuna
Rame (Cu^{2+}) :	<0,1		(<0,2 ppm)	Nessuna
Zinco (Zn^{2+}) :	0,05		(<2 ppm)	Nessuna

INFLUENZA NEGATIVA SULLA STRUTTURA - POSSIBILE ASFISSIA RADICALE DIFFICOLTA' DI PERMEABILITA' DELL'ACQUA E INFLUENZA SULL'ESP DEL TERRENO			
S.A.R. Semplice :	0,32		
S.A.R. Integrato :	0,60	(<6)	Nessuna
Conducibilità el. A 20°C :	409	(>500 µS/cm)	Probabile
Probabile ESP del terreno :	-0,80	(<5 meq/l)	Nessuna

INFLUENZA NEGATIVA SULLA CRESCITA E PRODUTTIVITA DELLE PIANTE (Salinità)			
Conducibilità el. a 20°C :	409	(<800 µS/cm)	Nessuna

POSSIBILITÀ OTTURAZIONE DEI MICROIRRIGATORI			
Alcalinità M (HCO_3^-) :	220	(<213 ppm)	Probabile
Ferro (Fe^{2+}) :	0,06	(<0,1 ppm)	Nessuna
Manganese (Mn^{2+}) :	<0,01	(<0,1 ppm)	Nessuna

POSSIBILITA FORMAZIONE RESIDUI SULLE PARTI AEREE E PROMOZIONE DELL'ESTRAZONE DI CALCIO E MAGNESIO			
Alcalinità M (HCO_3^-) :	220	(<91,5 ppm)	Probabile

POSSIBILITA AUMENTO pH E DIMINUZIONE DISPONIBILITÀ ELEMENTI NUTRITIVI			
R.S.C. :	-0,10	(<1,25 meq/l)	Nessuna

Determinazioni Microbiologiche	Unità Misura	Valori	Valori Limiti (a)	Inc. di Misura Lim.Inf.	Lim.Sup	Metodica di Riferimento
Coliformi a 36° C	UFC/100 ml	50	< 500			APAT CNR IRSA 7010 C Man 29 2003
Escherichia Coli	UFC/100 ml	0	< 100			APAT CNR IRSA 7030 C Man 29 2003
Enterococchi intestinali	UFC/100 ml	0	< 100			UNI EN ISO 7899-2:2003

Above is reported the analysis certificate for irrigation water provided by the "Consorzio di Bonifica di Bradano e Metaponto" (CBBM) to pilots parcels.